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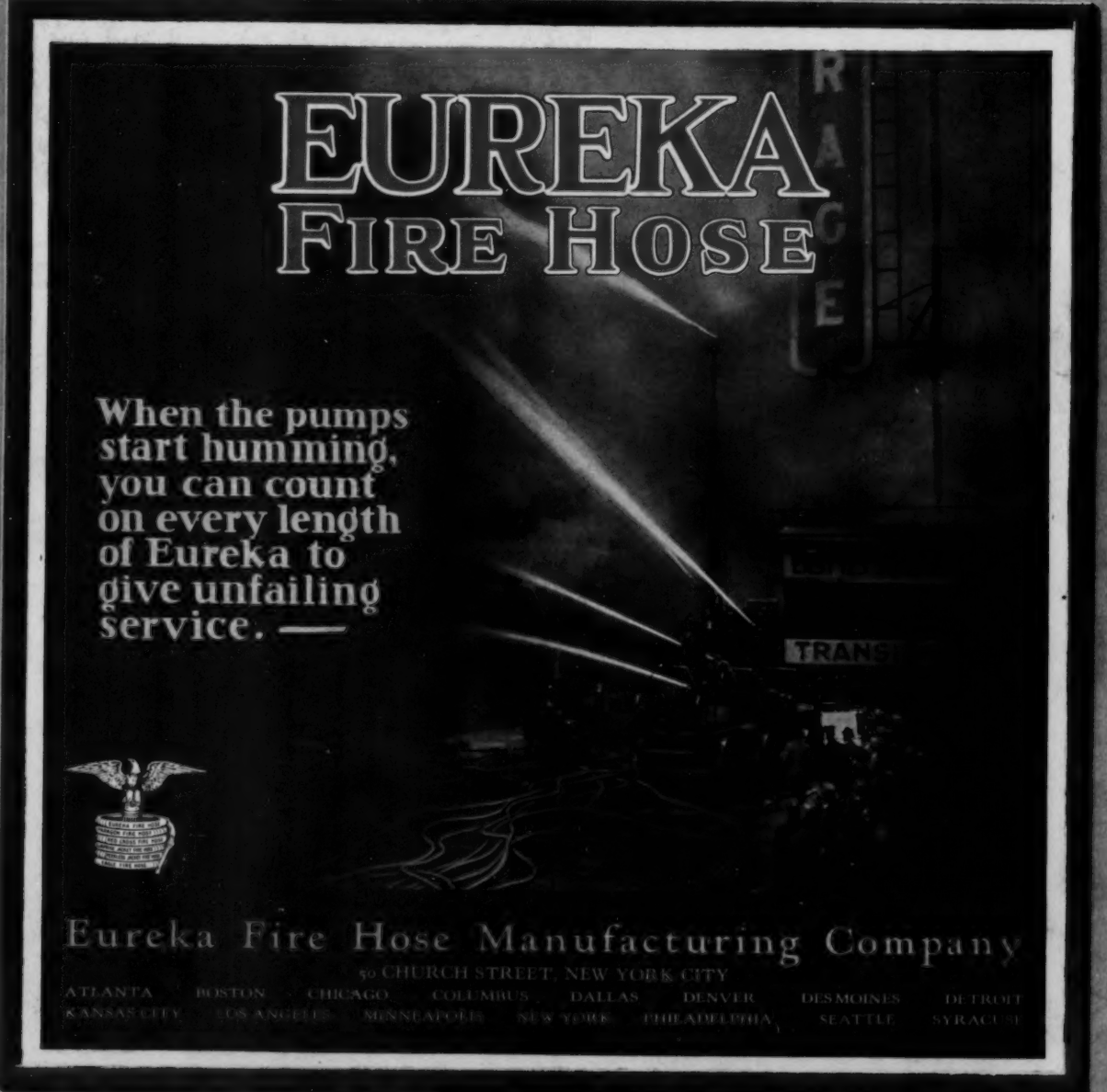
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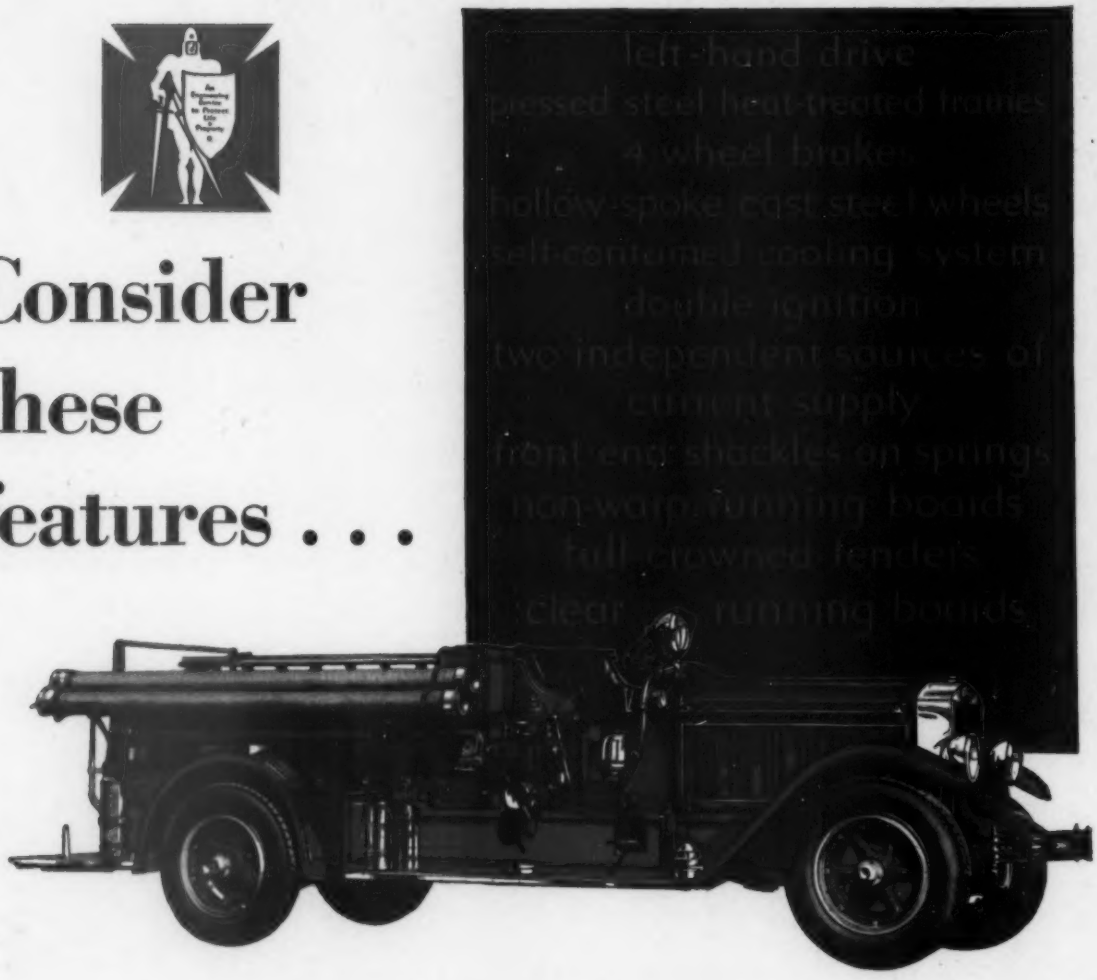

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The Journal of the Fire Protection Profession

VOLUME LXXXIII AUGUST 20, 1930 NUMBER 17

When Fire Department Apparatus Violates Speed Laws

Generally Held by Courts That Apparatus Is Not Subject to Speed Laws—Priority of Rights of Way—Care Must Be Exercised

By LEO T. PARKER, Attorney-at-Law

GENERALLY speaking, it has been held that fire department apparatus is not subject to speed or traffic regulations specified in state laws or city ordinances. In fact, in the majority of cases the rule is sustained that statutes or ordinances regulating the speed of motor vehicles are inapplicable to the police or fire apparatus while on active duty. This is true although the law establishing the speed limit employes the words "all vehicles," "any vehicle," or "any person."

For instance, in the leading case of Balthasar vs. Pacific Company, 202 Pac. 37, it was disclosed that a state law provides:

"No person shall operate or drive a motor vehicle or other vehicle on any public highway at a greater rate of speed than 15 miles an hour in approaching any steam, electric or other railway crossing at grade, or crossing or intersection of highways, or in approaching or going around corners or curves in the highway."

One day when a fire truck was going to a fire it collided with a street car and killed two firemen who were riding on the truck. The dependents of the firemen sued the electric railway company whose counsel attempted to avoid liability on the grounds that the fire apparatus was exceeding the speed limit. However, the Court held the dependents of the deceased firemen entitled to recover damages, stating the following important law:

"Notice to the person required to yield the right-of-way is essential, and a reasonable opportunity to stop or otherwise yield the right-of-way necessary in order to charge a person with the obligation fixed by law to give precedence to the fire apparatus. . . . It must be conceded that the language of the Motor Vehicle Act in fixing speed limits, and regulating the use of public streets, is broad enough to apply to a motor fire truck responding to a fire alarm. But a familiar and fundamental rule of construction requires that this general language shall not be construed to apply to the government or its agencies unless expressly included by name. . . . It is a general rule, in the interpretation of statutes limiting rights and interests, not to construe them to embrace the sovereign power or government, unless the same be expressly named therein, or intended by necessary implication."

Also, in Devine vs. City of Chicago, 172 Ill. App. 246, a fireman was killed when the fire apparatus on which he was riding ran into a hole in the street wrecking the vehicle. The dependents of the fireman sued the city for damages alleging that the city street department officials negligently permitted the hole to exist in the street, having had knowledge of the defective condition a reasonable length of time to have remedied it.

The city counsel argued that the city was not liable because the fireman was negligent in that he was violating a municipal ordinance when the injury occurred. Notwithstanding this contention the higher Court sustained the lower Court's decision holding the city liable, saying:

"The question of contributory negligence on the part of plaintiff's intestate is the main question presented on this appeal. The evidentiary facts are not controverted except as to the speed at which the deceased was driving at the time he was injured . . . He took the usual risks of an employment of a dangerous character, but he did not assume the risks of the insecurity of the streets resulting from the culpable negligence of the city. He was bound in driving to exercise the care which a prudent person would ordinarily exercise under similar circumstances. . . . We are of the opinion that a city ordinance regulating the speed of vehicles driven upon the streets of a city does not apply to members of the fire department of the city when responding to a fire alarm."

On the other hand, it is important to know that the circumstances of an injury to a fireman, sustained when fire apparatus is being driven at excessive speed, may be such that he not entitled to damages. This is particularly true if the accident results solely from his own negligence or carelessness. An example of this phase of the law is found in Illinois vs. Scheevers, 134 Ill. App. 514.

In this case it was shown that the fire marchal of the city, while driving to a fire at a rate in excess of that permitted by an ordinance of the city, drove upon the track of a railroad company and came in collision with an engine. It was held upon the evidence that the deceased was guilty of contributory negligence in so doing and, therefore, that the ordinance of the city was binding upon the fire marshal. This Court said:

"Appellee's intestate at the time he met with the injuries which caused his death was therefore violating a valid and binding ordinance of the city. That he would not have been injured otherwise is obvious. . . . Its violation by the deceased (fire marshal) constituted, as a matter of law, a prima facie case of negligence on his part. . . . Such violation contributed to the injury which resulted in his death. Contributory negligence is nothing more or less than

> "It must be conceded that the language of the Motor Vehicle Act in fixing speed limits, and regulating the use of the public streets, is broad enough to apply to a motor fire truck responding to a fire alarm. But a familiar and fundamental rule of construction requires that this general language shall not be construed to apply to the government or its agencies unless expressly included by name."

negligence on the part of the plaintiff, and the rules of law applicable to negligence of a defendant are applicable thereto."

Chief Answers Alarm Outside City

Another important point of the law on this subject was decided in Hubert vs. Granzow, 155 N. W. 204, in which the Court held that municipal fire department employes are not subject to speed laws when responding to a fire alarm, although the fire is outside the city limits.

In this case a pedestrian was killed by a fire chief's automobile which was being driven at a speed greatly in excess of the speed ordinance in answer to a fire alarm outside the corporation limits. The dependents of the pedestrian sued the chief for damages alleging that his negligence in violating the city motor vehicle speed laws, when not answering a fire alarm within the city, resulted in his liability. However, the Court held the chief not liable, saying:

"It is probably true that no legal duty is imposed upon a city fire department to assist in extinguishing fires outside the city; but it is a matter of common knowledge that such departments almost invariably respond when called upon in such cases. Actuated by motives of humanity rather than by the mandate of strict legal duty, they seldom refuse to give their services to their neighbors in case of need. While the law may not impose a legal duty upon them to assist in extinguishing fires outside the city, it certainly does not forbid them from doing so. If they respond to a call without the city, the same need for haste exists as when they respond to a call within the city; and for the same reasons they should not be required to observe the speed regulations in the one case more than in the other, unless the law expressly so provides."

Priority of Rights of Way

Frequently discussion has arisen whether or not a municipal fire department vehicle has the right of way over other apparatus, where the state or city law grants the same privilege or right of way to other vehicles, such as government mail trucks, salvage corps vehicles, ambulances, etc. This point of the law was settled in the recent case of Farrell vs. Fire Insurance Salvage Corp., 179 N. Y. S. 477.

The facts of this case are that a battalion chief in the fire department of the City of New York, in the performance of his duty, was on his way to a fire. He was riding in the front seat of a fire department automobile, seated beside one of his subordinates who was a fireman regularly detailed as a driver. At the intersection of two streets the automobile in which the chief was seated collided with a larger automobile of the salvage corps proceeding to the same fire in answer to the same alarm.

The chief was severely injured and sued the Fire Insurance Salvage Corps for damages. The latter contended that the fire department apparatus did not have the right of way in view of the following ordinance:

"The officers and men of the fire department, and the officers and men of the insurance patrol, respectively, with their apparatus of all kinds, when on duty, shall have the right of way.

"The Legislature undoubtedly provided that the city fire department should be in control at a fire, subject to no interference by defendant or its agents; but they did not attempt to weigh the nice questions of 'right of way' between fire apparatus proceeding to a fire, if there could be any dispute on the subject. The object of both organizations is practically the same. While we read of rivalry in the effort to reach the scene of the conflagration, with resulting conflict at times, in the days of the old volunteer fire departments, such conditions do not exist under modern municipal methods. . . . Both the plaintiff (chief) in his automobile and the defendant's (salvage corps') fire truck were undoubtedly traveling at high speed. That is what the vehicles were intended for, they were equipped with alarm bells, and defendant's truck had a siren whistle. . . . Now it is apparent that no priority in right of way is expressly granted by the Legislature as between the city fire department and the defendant (salvage corps) . . . While plaintiff and defendant had a right of way over other vehicles, as between themselves there was no right of way in favor of either."

In still another leading case, Coleman vs. Fire Insurance Patrol of New Orleans, 48 So. 130, a similar point of the law was involved in which it was shown that a city ordinance granted the right of way to apparatus of both the city fire department and salvage corps. However, the law further provided:

"Provided, however, that nothing in this act shall be so construed as to lessen, in any way, the authority of the fire department of the city in which such association shall have its domicile or to warrant or justify any interference with them in the performance of their duties."

On the night of June 23rd, between 11 and 12 o'clock, an alarm of fire was sounded and a fire truck started to the fire. At the same time from another location the salvage corps vehicle started to the same fire. The night was dark and the street lights were temporarily out of commission.

The two vehicles collided at a street intersection severely injuring a city fireman who sued the salvage insurance company for damages. The fireman proved that the salvage vehicle failed to take the most direct route to the fire.

In view of this testimony and the above quoted law, the Court held the salvage insurance company responsible for the accident and, therefore, liable for the injury. This Court said:

"There was some attempt to show, or rather to theorize to the effect, that the patrol people were at fault in not taking a more direct route from their house to the fire and that the collision might have been attributable to some defect in the sight of the driver. . . . The obligation which rests upon the officers and men of the patrol, in responding to a fire alarm, to be on the lookout for the apparatus of the fire department, is more imperative than is that of the officers and men of the fire department to be on the lookout for the apparatus of the patrol."

Must Exercise Care

When operating fire department automobiles on the streets, the rule is that a greater amount of care is required than in those cases of the use of ordinary motor vehicles where the maximum limit of speed is fixed by the law. Therefore, the law requires the use of efficient signals to warn all persons of the approach of fire department vehicles.

For example, in the leading case of City of Sacramento vs. Hunger, 249 Pac. 223, a city sued the owner of a private automobile to recover the value of a demolished municipal vehicle which collided with the private machine when its owner failed to drive to the curb and stop.

The city introduced testimony showing that the municipal vehicle was equipped with a siren which was being sounded continuously as the car was being driven on the street at the rate of 45 miles per hour.

However, since the private car owner proved that several individuals in the vicinity of the accident did not hear the siren, the Court held the city not entitled to recover a judgment, saying:

"There can be no doubt that there is ample testimony to show that the siren was continually sounded from the time the car started to the time at which the collision occurred, but, as in the very nature of the situation, there could be no direct testimony that said Hunger (car owner) at any time heard the siren before the accident, except by his own admission to that effect, and this he did not make. Obviously, the question whether said Hunger heard the siren was one of inference to be drawn by the jury from all the testimony in the case."

Laws Strictly Construed

Usually, if a state or city law specifically restricts the rate of speed at which fire apparatus or other emergency vehicles may be driven, it is actionable negligence for a driver to violate the law. Moreover, the exact formulation of the law is referred to by the Court when determining the scope of the law.

For illustration, in the recent case of West vs. Jaloff, 232 Pac. 642, a state law was adjudicated which prescribed a speed limit for "motor vehicles." The following section of the law defined "motor vehicles," as follows:

(*Continued on page* 714)

School Held for Los Angeles County Foresters

Members of the Los Angeles County Forestry Department were called together for an eight-day school of instruction in methods of combating tree and brush blazes. The department was originated in 1912 and is the largest organization of its kind in the United States. One of the duties of the department is the reforestation of burned over mountain areas. The men are here seen reciving instruction in the proper way of packing a mule.

Fire Department Cooperation by Mutual Aid Plans

Several Municipalities Arrange to Furnish Aid After the Second or Third Alarms—Each Community Given Protection

By H. S. WALKER, National Fire Protection Association

MUTUAL aid is claimed to be distinctively a New England idea, and there are many areas within this group of states that have developed plans of mutual assistance. The author, in the following paper, particularly discusses the mutual aid scheme in zones about Boston:

Mutual aid is primarily a New England development and in this territory it has received its greatest application.

Practically every city or town, particularly here in New England, which has an organized fire department with apparatus, has been called upon at one time or another to assist in extinguishing fires outside of the corporate limits. Calls of this sort have usually been of an emergency nature and have been specific neither in the amount of equipment asked for or given nor have they been in accordance with a pre-arranged plan which would provide for the protection of territory vacated by responding companies. With the development of improved fire fighting methods and procedure has come the plan of definite organizations of groups of fire departments in certain areas for the purpose of helping one another in event of conflagrations of fires of large proportions. This plan is known as "mutual aid."

What is meant and implied by the term "mutual aid?" It has been defined as application of the golden rule to the fire service, but it implies more than a willingness on the part of a given community to help its neighbor in distress. It means a definite and prearranged agreement and plan whereby regular response is provided for in event of alarms from certain boxes or locations—a plan that is practically automatic in its operation and makes possible complete and definite cooperation between the fire departments of the communities entering into the agreement.

The first record of a definitely established fire alarm hookup between two communities appears in the annual report of the Boston Fire Department for the year ending April 30, 1877. In the report for this year appeared the following:

"The wires to East Boston pass through Chelsea and a box and gong have been placed in the City Marshal's office of Chelsea, and connected with them, in order that aid may be promptly summoned by either city in case of need."

Further along the same report states:

"The call upon Chelsea will be given by striking upon the Charlestown and East Boston circuits the Boston number 198, four rounds. The call from Chelsea upon this department will be given by striking upon all the circuits in the city box number 198, three rounds—the same for first, second and third alarms."

At the same time definite provisions were made for response of companies to Chelsea. It is interesting to note that this box is still in existence and part of the Boston fire alarm system today.

In 1893 a circuit was run from the station of Engine 32 in Charlestown to a station in Somerville and about this same time a definite agreement was made with the town of Milton. Agreements with Newton and Brookline were made later.

Cambridge and Somerville have for years worked together on line boxes and on multiple alarms. A Cambridge tapper is provided in the Somerville headquarters and the Somerville circuit runs into the Cambridge central fire alarm station. Cambridge retransmits over its fire alarm system all Somerville boxes to which Cambridge is expected to respond preceding the box number by a distinctive signal.

Outside of the metropolitan area it is interesting to note that in November, 1893, a mutual aid agreement was made between the City of Lynn and the Town of Swampscott. This agreement has existed with no difficulty arising from that day until this and I believe Chief Warnock and Chief Chase will agree with me in stating that both communities feel that they have enjoyed value received. This seems to be borne out by an item appearing only a few weeks ago in a Lynn paper which read in part as follows:

"A dwelling house fire on Ocean street near Kimball road the other afternoon, demonstrated the efficiency of the mutual aid plan by which Swampscott apparatus from the New Ocean street headquarters rolls into Lynn nearby boxes. Chief Warnock and his Swampscott units were 'first in' at the fire and raised the first ladders and their chemical and water lines were laid quickly. The Swampscott firemen did a full share of the work of saving the roof from being burned off the fine dwelling house which was threatened.

"There are occasions, too, when Lynn units are 'first in' on certain Swampscott box alarms and hence the mutual aid plan distributes the glory on both sides of the boundary. Incidentally Swampscott's department, in addition to rolling in with dependable apparatus, brings always a manpower that is efficient. The plan is decidedly neighborly."

In the recent fire waste survey of Boston made by our Association a very considerable study was made of the mutual aid systems in the metropolitan area. This was done because a study of the fire records of some of these communities disclosed that the bad records have usually been due to serious large fires in which outside aid was required by the local fire departments. Moreover, there are several areas in and around Boston that offer serious conflagration possibilities. Large concentrations of fire apparatus would be needed at such points in event of serious fires and considerable areas would be left unprotected at

Quick and Better Response Possible

such times unless an adequate mutual aid system existed.

The experience of the Boston Fire Department has indicated that quicker and heavier response of apparatus to alarms has substantially reduced the number of large loss fires. It is therefore reasonable to assume that a comprehensive system of mutual aid among fire departments in the Boston area would undoubtedly promote a like result.

During the past few years this idea has gained considerable favor and more definite and elaborate systems have been and are being worked out. Some of these systems are excellent in their idea and method of operation and have been very carefully worked out. Others seems to operate well but with little or no definite arrangement. Still others seem to be more or less one-sided, one community giving much more than it receives.

A typical system in operation at present is that embracing the cities of Chelsea, Everett, Malden and Revere. This system was developed by the fire chiefs of these four communities. It provides for intercity response to "line" boxes, response and "covering-in" on multiple alarm fires in each of the cities included in the agreement, and response to alarms in the adjoining cities where two boxes have been pulled and an alarm is received from a third box.

"The details of working out these systems are neither intricate nor costly. A definite written agreement is essential and uniform assignment cards should be provided so that there will be no confusion as to assignments, and the chief of one community will know the exact amount of help readily available."

The system also provides for the inclusion of Medford, Winthrop, Somerville, Lynn and Boston companies on fourth-alarm response, depending, of course, on the location of the box pulled. The arrangements with these five latter communities, while included on the printed assignment cards of Everett, Chelsea, Revere and Malden, are less definite and aid from these cities must be called by telephone. Plans are now under way for closer cooperation with Medford.

The actual working out of this system has been accomplished by running a fire alarm circuit from each of the interested communities to one or more fire stations in the others. One of the weak points in this system appears to be that it is not adequately tied into Boston. With adequate cooperation from Boston the system could be simplified, additional companies could be made available on multiple alarms, shorter runs could be worked out (with modern traffic conditions this is important) and the territory vacated by responding companies could be better covered.

Another excellent suburban system is the mutual aid agreement between Arlington, Belmont, Lexington, Medford and Somerville. The mechanics and operation of this system are similar to the one just described. Plans are being perfected for the inclusion of Winchester in this mutual aid group and Arlington and Winchester are already working together on "line" boxes. Wires have also been provided as far as the Cambridge line on the Arlington side anticipating a future hook-up with Cambridge. Line boxes are answered by both towns interested, and regular provision is made for response on multiple alarms in the various communities. Belmont in addition to being in this group also has an agreement with Waltham and Watertown providing for mutual assistance on "line" boxes and multiple alarms.

Boston Recognizes Mutual Aid

The present Boston assignment card takes into account the mutual aid factor in the handling of a "general" alarm. The sounding of a "general" alarm provides for the movement of the maximum amount of apparatus in any given district and leaving in quarters the smallest number of companies essential for safety. In order to accomplish this it has been necessary to provide for the movement of suburban companies into the city and toward the fire. This has been done and assignments provided on the running card utilizing approximately one company each from a number of the adjacent cities and towns.

Getting away from Boston, to the west Brookline, Newton, Needham, Natick, Watertown, Waltham and Wellesley have effective mutual aid arrangements. Melrose and Malden work together, and one or more of the departments of Reading, Woburn, Wakefield and Stoneham have a cooperative agreement. In Connecticut, Hartford and West Hartford answer line boxes in adjacent territory. In other sections of the country, too, communities have given considerable study to the idea of mutual aid although there is no section other than the eastern states where due to the nearness to one another of the various communities, plans of this type are so practicable.

One very interesting development is now taking place in Westchester County, N. Y., where a mutual aid system similar to those in operation in Metropolitan Boston is being worked out. This embraces the various cities and towns in the county and both permanent and volunteer departments. Assignments are cared for in much the same manner as multiple alarms on running cards in the cities. Hook-ups are made by telephone supplemented by the teletype service in use by the police force of the various cities, towns and villages in the county.

A letter from Chief Mulcahey of Yonkers states:

"Personally I believe it will become of great value to the different communities. We have the assurance from the city of New York on a letter of request to the authorities they will arrange to give aid to an area covering thirty-five miles in our county, and for that purpose will establish three master boxes on their northern boundary, which means a master assignment, and at the same time there is a mutual agreement where one town moves up in case of trouble.

"Originally I was not very much interested, but on repeated contact I find a very enthusiastic body, much interested and indication that they realize fluly what it can be to them.

"I find since organizing, a wonderful spirit has grown among all the chiefs in the county. Where the little man formerly would scarcely enter the quarters of what they thought the big department (in fact they scarcely knew each other), today all is changed and each one is genial. There is no hesitation to drop in and ask questions on our methods and procedure, and I am sure they profit by doing so."

In New Jersey a plan was undertaken about a year ago for cooperative fire fighting in ten municipalities in Essex County adjoining Newark. It provided for mutual aid on "line" boxes and for "covering in" in event of fires in adjoining communities. A similar plan has been in operation for some years in Atlantic County with control headquarters in Atlantic City. These two systems rely, I believe, on the telephone for communications.

There is an organization of forty-eight towns in the southern part of Illinois which provides cooperation among a group of fire departments not part of a metropolitan area. This group has been active in the standardization of hose couplings and other equipment so as to be able to give maximum service when called upon. A running board or schedule is provided showing the towns that should be called first by each town in the Association. The board also indicates the towns that should "cover-in" to towns whose departments have answered the call for aid. With this organization, mostly volunteer departments, this section has available all the fire equipment necessary within a radius of twenty-five miles, and no towns, backed as they are by the other department, are ever left unprotected.

Features of the Plan

The foregoing, covers in a brief way, some of the existing mutual aid arrangements and their apparent satisfactory operation. They indicate beyond a doubt their value as part of an organized fire fighting system and it seems logical that such systems should be extended and coordinated particularly in areas of adjoining communities. This would bring about a system of response or of covering on multiple alarms so as to provide an adequate response of engine companies on second or succeeding alarms and the covering of all vacated territory so that in event of a second fire at least a portion of the regular first alarm response would be immediately available. Such a system would work to the advantage of all cities and towns involved, the largest as well as the smallest, and would work a hardship on none.

The details of working out these systems are neither intricate nor costly. A definite written agreement is essential and uniform assignment cards should be provided so that there will be no confusion as to assignments and the chief of any one community will know the exact amount of help readily available. Authority at a fire would naturally rest on the chief officer in whose territory the fire is located for he is legally charged with the responsibility of fire extinguishment in his city or town. Under this plan all officers and companies responding under the mutual aid call would report to the local chief and accept from him such authority as he may choose to indicate.

Extension of fire alarm systems to be inter-communicating is distinctly advisable, and practical in most instances. The experience during a recent fire in a town near Boston when more than twenty minutes were required for the superintendent of fire alarms in an adjoining town who had responded to the mutual call to get his own office by telephone clearly indicates the value of fire alarm connections between cities.

The matter of the legality of serving territory outside of

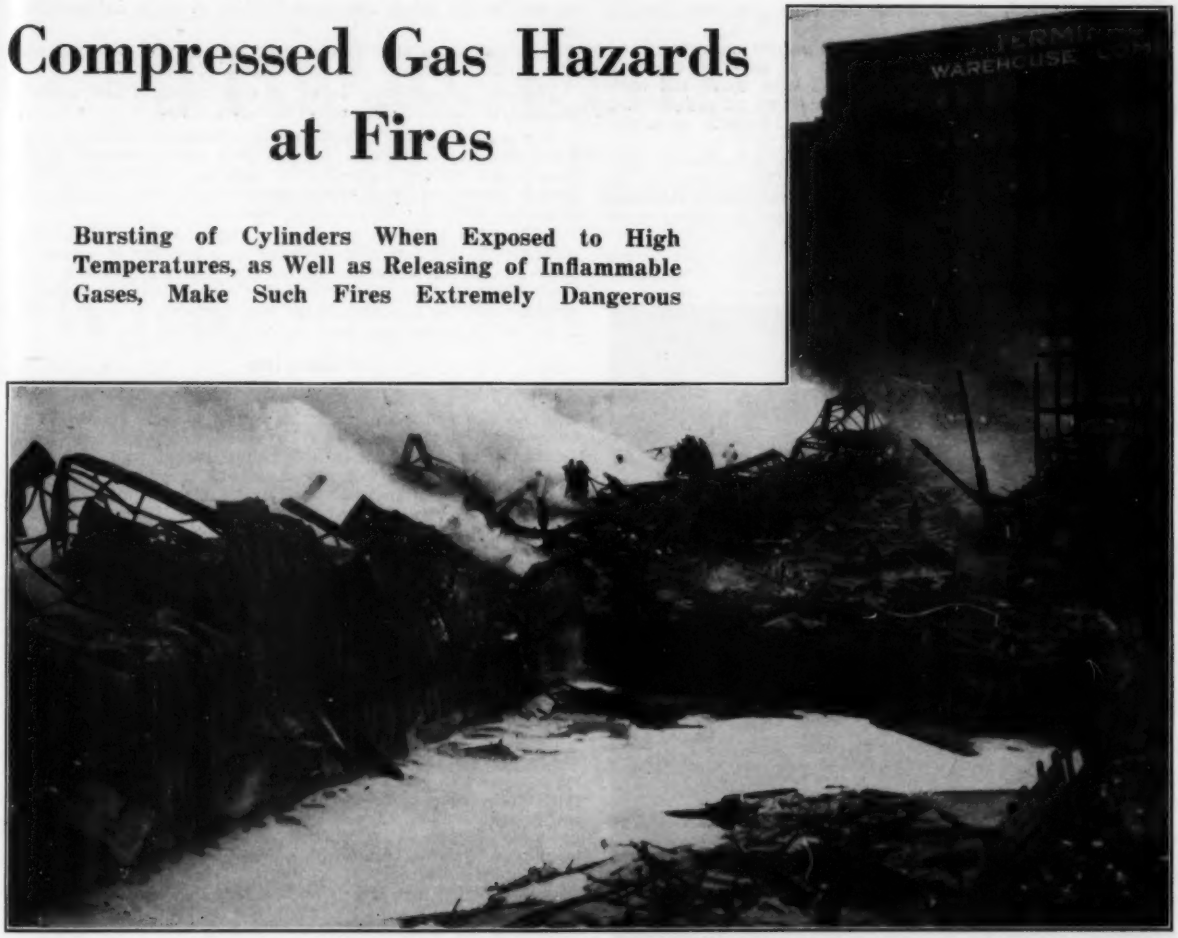
(*Continued on page* 703)

Forerunner of Chief's Private Auto

Back in 1914 there were few automobiles, and Frank W. Wood who was then head of the little volunteer department in Brenham, Texas, has pleasant memories of "an early model of the chief's runabout." It was his faithful horse Blue Boy. The animal recognized the sound of the fire whistle, and in all kinds of weather, galloped to the fire. The old gray horse was well cared for and popular with the residents. Even though the Chief is provided with a gray Buick, the older folk still ask for the old gray horse.

Compressed Gas Hazards at Fires

Bursting of Cylinders When Exposed to High Temperatures, as Well as Releasing of Inflammable Gases, Make Such Fires Extremely Dangerous



The Explosive Force of Some Gases Is Tremendous

Accentuated by blast of gases under high pressure, stored in cylinders, which were released at a fire in Philadelphia recently, huge pieces of metal were thrown over large areas. A number of persons were injured in the rain of debris and many firemen were overcome by the fumes released through the cylinders which burst or otherwise opened up. The fire involved the warehouse wherein gases in cylinders were stored.

MANY gases are stored under high pressure in metal cylinders, and some of them are encountered in almost every industry. The nature of the gas as well as the method of storing, and the quantities on hand, are of great importance from the standpoint of life hazards to members of the department operating at fires.

A few of the more commonly encountered gases found in metal cylinders under high pressure include acetylene, ammonia, carbon dioxide, chlorine, ethane, hydrogen, hydrogen sulphide, oxygen, propane, and sulphur dioxide. There are many others which are met with to a lesser degree, but the particular hazards included in the above also include other gases similarly retained.

Although the modern method of storing gases in metal cylinders under high pressure requires a wheel or disk which will let go under pressure lower than the bursting pressure of the cylinder, nevertheless many cases are encountered where the cylinders themselves give way under the tremendous pressure created by the heating of the cylinder and its contents. For this reason fire departments should be prepared to encounter the worst conditions.

Some gases are highly poisonous and may cause death upon inhaling; others are inflammable and produce explosive mixtures when brought in contact with air in proper proportions; others while not extremely poisonous, produce conditions in the atmosphere where they are released such as to seriously interfere with the work of the fire department.

The gases listed above will be reviewed in an endeavor to indicate what the fire department may expect from gases in metal cylinders, and stored under high pressure.

Acetylene

This is a colorless gas of disagreeable odor, caused by the presence of hydrogen-sulphide. It is highly inflammable, burning with a bright smoky flame.

It is used for illumination; and burned with oxygen it produces a very hot flame commonly used in cutting and welding of metal (oxy-acetylene welding). It may be used direct from generators or from tanks in which it is stored under pressure, and dissolved in acetone.

Acetylene is highly inflammable, as noted above, and forms explosive mixtures with air in a very wide range (about 2.5 per cent to 55 per cent). It has a tendency to decompose into its element with the development of great heat, the resulting expansion of the gases producing great explosive effect. It ignites spontaneously in the presence of chlorine. It may be exploded by a primer or under certain conditions by shock alone, or by an incandescent wire. It is exceedingly hazardous.

Ammonia

Ammonia is a colorless gas with a very pungent odor. If inhaled in its pure state in large quantities, suffocation and death may ensue.

It is encountered at fires in refrigerating plants, breweries ice factories, hotels, restaurants, wool washing establishments and dry houses, ice cream factories, candy factories and other establishments wherein low temperatures are necessary in manufacturing processes. When smoke at such fires becomes impregnated with ammonia fumes, it is highly irritating and extremely dangerous. Its chief danger is sudden death from edema of the lungs or rapid swelling of the glottis. The glottis is a valve which is lined with mucous membranes. When a person swallows, this valve closes over the windpipe to keep food from entering the lungs. When an irritating fume is inhaled, the mucous membrane, or covering membrance of this valve,

may swell suddenly and shut off the wind pipe, thus causing asphyxiation.

Ammonia gas is not combustible at ordinary temperatures and a flame is extinguished if plunged into it. If, however, ammonia is mixed with oxygen, the mixed gases may ignite and burn with a pale yellow flame. Ammonia mixed with oil such as used in ammonia compressors, may produce an inflammable or explosive vapor.

Authorities also declare that ammonia gas is explosive when mixed in proper proportions with air. They point out as examples such explosions as occurred in the Morris Packing Company plant several years ago when a score of firemen were killed by walls being blown out on them.

This gas is usually stored in steel cylinders, and unless equipped with proper safety devices the cylinders may burst

Who Said Cylinders Won't Burst?

A bonfire built by longshoremen to keep them warm was too near an ammonia tank in Brooklyn two years ago. The tank exploded, injuring several. The illustration shows all that remained of the tank after the explosion.

upon being heated. Ammonia, like other gases, expands upon being heated, and such expansion produces proportionate increase in pressure within the cylinder. If the cylinder is not sufficiently strong to withstand the pressure, it may burst, releasing the gas and doing other damage.

In order to protect men at fires in plants at which ammonia is present several precautions are necessary: Thorough ventilation, plentiful use of water, protection of men with smoke helmets, (especially in a gas filled room, and if ammonia gas is present in great density, only men with self-contained breathing apparatus and rubber suits should be permitted to enter.)

If there is an ammonia discharge pipe leading to the atmosphere and within control of members of the department, gas should be released. On the other hand, if there is mixing chamber wherein water may be discharged from hose lines through apparatus to absorb ammonia, this should be used as a precautionary measure. Such operation prevents escape of free ammonia to the air, and thus provides additional safeguard to the men operating in the immediate neighborhood of the fire.

Water streams absorb tremendous quantities of ammonia, and they also cool ammonia tanks, piping and cylinders, reducing the pressure therein and thus checking the possibility of explosion.

Carbon Dioxide

Carbon dioxide is a gas which is produced by the burning of ordinary combustible materials such as wood, cloth etc. It is also used extensively for fire fighting, both in its natural state, and as an agent for discharging liquids from other extinguishers as well as for filling the foam bubbles in foam extinguishing systems.

It is carbon dioxide that is generated in the soda and acid extinguisher when the soda water and acid unite.

The gas is ordinarily found in steel cylinders and under a pressure of around 1,200 pounds per square inch.

The pressure in the carbon dioxide cylinder is increased when the cylinders are exposed to fire. They thus produce a severe hazard due to the possibility of bursting. However, carbon dioxide gas when freed in the presence of a fire, actually extinguishes the fire. It is heavier than air.

Carbon dioxide, when present in moderate proportions will not endanger the lives of men operating at a fire, but if present in large proportions it dilutes the air and thus may make it non-supporting of life. However, if there is sufficient carbon dioxide in the air to endanger the men operating in an enclosure, there will be more than sufficient to extinguish the fire.

Chlorine

Chlorine is a greenish-yellow gas of very pungent odor, and is about two and a half times as heavy as air. It is used in many chemical products and is frequently thrown off by these substances when exposed to fire. Thus, even if chlorine is not found in its free state at a fire, it may be present due to action of the fire on other materials into which it enters in the process of manufacture.

It is widely employed in textile and paper bleaching factories. Also in purification of water, synthetic dye manufacture, as a military poison gas, and in many industrial chemicals and explosives. Mixed with hydrogen or acetylene it explodes in the sunlight.

Chlorine in liquid form is shipped in either steel cylinders, ton drums, or tank cars of 15 tons capacity. The cylinders and ton drums are provided with fusible plugs.

Chlorine is a powerful respiratory irritant, and in sufficiently high concentration can cause death by action on the lung tissues.

However, in concentrations far below injurious ones, it gives warning of its presence by sight and smell. It is most harmful when inhaled in a confined space in which it is present in high concentration, provoking instant spasm of the glottis, nose, throat and bronchial tubes. When fatal results are produced, death is generally caused by smothering or asphyxiation, that is by inability to breathe because of edema of the lungs and closure of the bronchial tubes.

The following instructions on handling chlorine may prove of use:

Keep to the windward side of the leak.

If leakage is extensive, promptly warn all persons in the path of the fumes to move to a safer location.

If water is available, use it freely on the escaping liquid. This forms chlorine hydrate instantly, from which the evaporation of gas is slow.

If water is not available, dig a trench to draw off the liquid to a lower spot. The pool formed can then be treated later with water. Loose earth should be thrown on the liquid at once to retard evaporation.

If tanks are punctured above the liquid, only gas will escape, and this will cool off the contents so that the leakage will be slow. If leakage is below the liquid level, it will continue until top of liquid reaches the opening and then slow down to a gas leakage.

Leakage in a severe fire should not be serious, as the gas will be carried upward and dissipated with the products of combustion.

In treating a person affected by chlorine gas the manufacturers of this gas recommend the following:

1. Remove at once to open air and away from all gas fumes.
2. Place patient flat on back with head slightly elevated.
3. Give ½ teaspoon essence of peppermint or moderate dose of bromo seltzer or whiskey.

This will relieve the tendency to cough and soothe the inflamed membrance, allowing a passage of air and promoting the action of respiratory organs.

4. The persons affected should resist as much as possible the impulse to cough.

While serious after-effects are not always to be expected, a physician should always be called.

Ethane

This is a gas commonly used in refrigerating systems, and is a gas possessing the appearance of water when in liquified form. The gas itself is slightly heavier than air. It has an odor somewhat like ether.

It is shipped in steel cylinders. The hazards of the gas are

(*Continued on page* 703)

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

"WHAT will we do?" asked the Chief of the gay nineties when he watched the development of four-story buildings, with considerable alarm.

"What will we do?" chorused the firemen.

Such amazing heights were unheard of. Suppose the building should burn? Suppose a person was trapped on the top floor? And before the department stopped supposing, an ambitious builder added another floor.

But buildings had to go higher. To make this possible the hydraulic elevator was developed. Steel was introduced in building construction and fourteen stories were not at all impossible. A building 140 feet high!

"What shall we do?" queried the chief in much the same way as the department head of an earlier period did before.

To keep step with changing conditions, he encouraged the development of pumpers that would "squirt" water to such an astounding height, and appliances that would make it easier for his department to reach the upper floors.

As property values multiplied at a surprising rate, and it became too expensive to build over a large surface area, it was necessary to rear the buildings skyward. The twentieth century brought with it a surprising change in the skylines of many cities. The maintenance of five-story buildings on high value property has proven to be false economy, while tall structures have become a business necessity.

Chiefs all over the country watched with considerable interest the construction of the Woolworth Building in New York City, at that time the tallest building in the world. But when the building was completed the New York Fire Department conducted tests to prove that the fire department was ready to meet this unusual problem.

Taller buildings have superseded the famous Woolworth Building, and there is no telling where the limit can be placed.

How then may fire hose be raised in a burning building of many floors without tiring the men unnecessarily?

The problem in this issue appears in full in the box on the first page. In the box on the second page is the question that will be treated in the next issue. Should you have a question that you would like to see treated in this department, or if you have some comments that you would like to add to the next discussion, you are invited to write to the "Round Table Editor," Fire Engineering, 24 W. 40th St., New York, N. Y.

These features are worth filing as they contain information that may prove of future value.

HERE IS THE PROBLEM

What method do you follow in raising hose to the various floors or positions in place of the "dough-nut" method?

What method do you follow in raising hose to high points in a burning building?

Discussion of the Question

Not every large city has tall buildings. In some places, soil and geological conditions prohibit very tall structures, and the department has little worry concerning the problem of raising hose to tall buildings. Because of varying conditions, each official has different ideas on this subject. That is why the following replies are interesting:

Edw. F. McGurn, Drillmaster, Fire Dept. Drill School, Chicago, Ill.:: The methods used here in raising hose to high points in burning buildings are as follows:

When an officer in command of any engine company is ordered to work on or from the roof of any building six or more stories in height, he shall use the standpipe if same is available. In using outside standpipes the officer sees to it that the gaskets are in the swivels and that all connections are secure and in good order and that all outlets, except those to be used, are closed and that a sufficient amount of hose to reach any desired place on the roof or floor is taken up with him. When an officer intends to connect with an inside standpipe he shall order one or more lengths of hose with the proper nozzle to be taken for use in case of defects in the hose line.

When a commanding officer of any company is ordered to hoist lines to a roof or upper floor of any building, he shall see that the ropes and hose rollers are placed at such points as necessary. The tail ropes of the hose rollers should always be securely fastened. Hose lines, when hoisted to the roof or upper floors of a building, shall always be well secured. The holding rope, whenever possible, shall be tied under the first coupling immediately below the roof cornice or window sill.

In buildings five stories or less in height hose straps are used to carry lines of hose up. The hose straps are "strapped in" on the hose at short intervals and placed over the left shoulders of firemen. This method is invariably used on buildings of this height.

We also have another method which is used frequently on stairway fire escapes, by using Shepherd hooks. We also make use of the Shepherd hook in stairwells, making it possible for us to pass lines of hose up quickly by avoiding the many turns on such stairways. For your information, I would say that our Shepherd hook is about twelve feet long, having a hook at the top end to hang on fire escapes, and a chain loop about fifteen inches long at the lower end. The chain is fastened about the nozzle on the hose line.

Chas. J. Brennan, Chief, San Francisco, Calif.: We use various methods in raising hose to different floors or positions in a building, the method employed depending upon the circumstances encountered. Following are some of the methods used:

By elevator, if available; by the use of 12-foot fire poles, the men passing the hose from one balcony of a fire escape up to the next; using a 200-foot rope to pull the hose to the desired floor; rolling hose from center so that both butts are outward, there being one length 2¾" or 3½" hose to a roll. This is carried by the men to the desired point in the building. Small lines of hose are carried in a roll, there being two lengths to every roll. The hose is rolled from the center to avoid twisting. It is trapped and ready to be manually transported to any point within the building.

All buildings of four or more stories in height have one or more dry standpipes, equipped with two, three, four or six way inlets. There are branches of the standpipe on every floor and a siamese outlet on the roof. Branches and roof outlets are equipped with standard 3-inch gate valves. Dry standpipes are separate and distinct from interior wet standpipes, and are for the sole use of the fire department.

The dry standpipes on buildings are used as follows: Lines are taken over ladders and hand leads are made up the main stairs.

Of course the general construction of a building, the type of occupancy, the stage the fire has reached upon the arrival of the department, all enter into the question of determining the method to be employed in raising hose.

All tall buildings under construction are required to have a standpipe installed, the capacity of same increasing as the height of the building increases. These standpipes must be capped, and have branches with 3-inch gate valves at each story. The fire department supplies the hose, sufficient hose being coupled up to reach vital points in the building. Usually hose is coupled to every third floor. It is also required that inlets on sidewalk be kept unobstructed. We have four water towers in service in San Francisco which are brought into play when necessary for fire duty.

H. M. Topping, Chief, Whittier, Calif.: In place of the dough-nut roll, use the one man fold, placing male and female coupling at the same end. Fold the hose in three folds, equally divided, placing one fold on top of the other and carrying the hose on the right shoulder up the ladder or stairway of building if the structure is two stories high. Upon reaching the destination, if the building is equipped with a standpipe, couple the hose onto the standpipe and proceed to the seat of the fire. If there is no standpipe, lay the hose up the stairway, using a 50-foot length for each landing, so as to reach from one landing to another. Allow one length of 50-foot hose to reach from the landing to the seat of the fire.

To raise hose to high points in a burning building use the one man fold as before, proceeding the same way up a fire escape to a landing and lowering the female end of the hose to landing below, where a pipeman is stationed to couple the hose remaining on the ground and thereby completing the line. Strap the hose on the fire escape to relieve back pressure and secure firmly. Proceed with other folded line up fire escape and attach it at the landing and at the location of the fire. In case the building is equipped with an elevator, attach the line to the bottom of the elevator cage and pull the coupled line to the floor of the fire. Have one fold in the cage of the elevator. Remove the attached line from the bottom of the cage and connect the 50-foot line carried in the cage of the elevator to the line now in the elevator shaft. Proceed to the seat of the fire.

P. D. McCartin, Chief, Colorado Springs, Colo.: I consider the "dough-nut" method of raising hose obsolete. We use the Chicago spanner and belt, with a loop around the hose and the strap over the man's shoulder, letting the hose go up on the outside of the right hand beam of the ladder. The spanner can be hooked onto a rung of the ladder when the hose is at rest, holding it securely. Care should be taken, however, to keep the hose fairly straight in order to avoid kinks when the line is charged. We usually use four men with spanners to raise the hose.

Another method we employ is to send the men up with a rope, which is dropped down from the point where we want the line to enter the building. A hitch is then taken onto the dry line, which is hauled up and the water turned on.

E. C. Haskin, Fire Marshal, Highland Park, Ill.: In raising hose one man is sent to the roof with a rope which is lowered to the ground. The man on the ground fastens the hose to the rope and the line is then raised by men on each floor. When raised to the point desired, the line is made fast by spanner belts on each floor of the building. Members of the department then proceed to the nozzle and the water is turned on.

Thos. H. Shipman, Chief, New London, Conn.: In raising lines of hose to various floors or points in a building, the hose is taken up the fire escape by the approved method of placing a man having a ladder strap on each landing. The hose is passed up by means of a plaster hook, which is attached to the end of the hose.

If the stairway is to be used, the hose, where possible, is fastened to each landing.

If the hose has to be taken up ladders into windows, this is done by a nozzleman placing the hose over his right shoulder and under his left arm, leaving the hose on the left side of the ladder. Sufficient men are used to assist him in getting the line up. If a line in this position is to be used for any length of time, a rope is passed up, a rolling hitch is made on the hose outside of the window sill, and then the rope is fastened to some object inside the room. In this way the ladder can be used for other purposes.

In raising hose to higher points, we send a number of men to the roof with a rope, nozzle, axe and hose roller. The men lower the rope to the street, where the hose is attached. By placing a man on every other floor the men on the roof can be assisted materially in pulling the hose to very high points.

Geo. S. Watson, Chief, Washington, D. C.: Hose lines are carried up stairways, ladders and fire escapes coupled together, with the aid of ladder straps or ceiling hooks. Where standpipes are to be used the hose is carried up in "dough-nut" style.

Life lines and hose hoist are used to pull hose up on the outside of buildings. Where the fire is at high points the officers are instructed to send men up in the building to a point half way the distance from the ground to the fire and throw out an additional life line. This is attached to the hose, thereby relieving the load carried by the first life line.

Henry R. Taft, Chief, Norwich, Conn.: Our buildings do not reach any great height. Eight stories is about the maximum.

In raising lines to various floors the manner employed depends upon the location of the fire and the headway it has gained before the arrival of the department. If there are fire escapes the hose is carried up, uncharged, by men stationed at every so many feet apart. This method is also employed when hose is to be carried up stairways. Roofs of adjacent buildings are often used in fighting fires. In these instances lines are raised by means of a Bresnan hose hoist, which is used to pull hose attached to a rope to the roof

(*Continued on page* 705)

HERE IS THE PROBLEM FOR THE NEXT ISSUE

Do you have an insurance policy to compensate volunteer firemen for injuries received in the line of duty?

If not, how do you compensate your firemen and what are some of the adjustments made?

What is your opinion of compensation insurance?

With the Editor

What Benefit the I. A. F. C. Convention?

This is not a difficult question to answer! The national conventions of the Chiefs' Association embody many special benefits to the fire fighter that are not obtainable elsewhere. This year the association meets at Winnipeg, Manitoba, Canada, on September 9 to 12, inclusive, and here alone is to be found an added advantage in the opportunity to visit the beautiful central Canadian section of the Continent so rich in its scenic effects.

But the earnest Chief first thinks of what advantage the convention will be to him from the standpoint of his profession. Let us then consider the gathering from this angle. The annual conventions of the association are primarily educational in their scope. The papers and the discussions are meaty with informative and instructive facts in the line of the Chiefs' work, both in fire prevention and fire fighting, and contain the best thoughts on these subjects of men who are experts in their profession. After the sessions are over at all other times during the week, there are the informal gatherings about the exhibit hall and the lobbies, where the members will naturally drift into "shop talk" and where, perhaps, fully as valuable information may be obtained through the informal exchange of ideas by the men "on the firing line."

Then there are the exhibits. No one will doubt that the displays made through the courtesy of the manufacturers are educational in their character. Here the wide awake Chief may study the very latest developments in the apparatus and appliances for fighting fires and obtain ideas as to how he may best improve the efficiency of his organization by the adoption of the devices best suited to his special needs.

However, the conventions of the I. A. F. C. are by no means all work. There are also the lighter features to be considered. This year Chief Boulden, of Winnipeg, has worked with enthusiasm and to advantage to arrange many attractive features for the entertainment of the Chiefs and their families. He intends to see to it that the visitors have no idle moments and many good things are in store for those attending the convention. There is much to be seen in the Canadian city and the Chief will leave no stone unturned to give his guests every chance to visit all of the points of interest.

There is one class of fire fighters to whom this convention should prove especially attractive. That is the younger officers of the fire service. A golden opportunity to improve themselves in their profession is contained in this gathering. It is to be remembered that promotional examination questions are frequently based on new problems which constantly arise in fire fighting and it is at the convention where these problems are first brought to light for the purpose of discussion. The expense of attendance at the Winnipeg convention could well be looked upon by the young officer as an investment, and one which will surely yield a big dividend in added knowledge obtained.

Taken all in all, one could hardly find a more profitable as well as enjoyable way of spending one's vacation than by attending the fifty-eighth annual convention of the International Association of Fire Chiefs at Winnipeg. Try it!

Fire and Human Life

We are so accustomed to speak and think of fire in terms of property loss that the idea of its relations to the snuffing out of human life rarely occurs to us, until it is brought home forcibly in some heart-sickening disaster in which many human lives are sacrificed unnecessarily.

Statistics show us little or nothing. While the tabular records of property losses by fire are now fairly accurate and detailed, the loss of human lives, as far as exact statistics are concerned, is a nebulous and uncertain quantity. It is quite probable that were such exact statistics available, showing the loss in human life by fire by years, the record would be as startling and appalling as are the property loss figures when presented in the form of totals.

An interesting compilation of statistics has just been made by the Fire Casualty Statistics Committee of the National Fire Waste Council, and part of it is reproduced in this issue. It is in the nature of a cross-section of the losses of life by fire in this country, giving some averages from which the approximate totals may be adduced. Twenty-two of the States have been included in the six surveys, each survey including eight to fifteen states. The object of the surveys was to procure as accurate information as possible of deaths and injuries in predetermined group of states, the population and general characteristics of which would constitute a representative sector of the entire country.

Three surveys were made in April, May and June and three in November, December and January. The object of this choice of season was to form a comparison between the casualties in the winter months and in those in the more moderate months of the year.

Some very interesting results are to be found in a study of these statistics. For instance, the death rate

proved to be very much higher in the extremely cold months than in those of more mild temperature. No doubt Chiefs could study these figures with profit and be greatly aided in their fire prevention and inspection work by the results brought out. A careful consideration of these figures is therefore recommended.

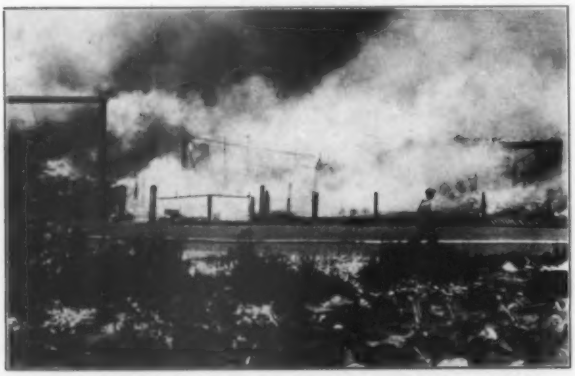
Radio and the Fire Service

There are, without doubt, great possibilities in the use of the radio in the fire service. As yet, little advantage has been taken of this new development of science as far as the fire-fighting profession is concerned, but, as time goes on, it will be taken up more and more by chiefs as a means of keeping in touch with fire boats and fire apparatus in their active operations.

In some cities advantage has already been taken of the radio in connection with the operations of fire boats, for which it has a special usefulness. In New York City tests were recently conducted along the water front in communicating with the Fireboat "John Purroy Mitchel," which has been equipped with radio telephone apparatus. The experiments, which were made on actual fire runs of the boat, included communication between the boat and the engine house of Marine Company No. 57 at the Battery by means of a 400-watt short wave transmitter operating on about 188 meters.

Successful conversations were carried on in these experiments when the boat was as far away as the Hudson River and Ninety-sixth Street, Manhattan Borough; Hell Gate Bridge in the Bronx, and the neighborhood of the Staten Island piers. Two receivers are employed, one, a long wave set for intercepting S O S calls and similar messages, and the other the short wave set, for messages between the boat and the shore.

That this plan will be capable of eventual development to a much greater degree and to broader uses in the fire service cannot be doubted.



Why 3,500 Pigs Didn't Go to Market

While this photograph was being taken, smoke obstructed the scene of 3,500 pigs that burned to death in a piggery in Secaucus, N. J. The fire started from a spark liberated from the engine house chimney. The owners had reason to repeat the nursery rhyme: "This little pig stayed at home."

Chief Fisher Resigns From Dubuque

J. W. Fisher, head of the fire department in Dubuque, Ia., resigned to accept a similar position in Covington, Ky.

Chief J. W. Fisher

At the request of O. E. Kratz, city manager of Covington and formerly city manager of Dubuque, Chief Fisher made a survey of the Covington department and helped Mr. Kratz in his reorganization plans. Chief Fisher spent most of his fifteen-day vacation at this work, and started the same evolutions and drills that were in use in Dubuque. He made such an impression on local officials that several newspapers printed editorials urging the city to obtain Chief Fisher as fire commissioner. He was then offered the post.

Before accepting, Mr. Fisher demanded that the man power of the Covington department be increased and that he be given assurance that the city would obtain more modern apparatus. Also that he would have full authority in building up the department.

In his ten years as chief of Dubuque, Ia., he was successful in establishing the department on a high plane.

He started his firemanic career as a fireman in Nashville, Tenn. He was a member of the department there for twelve years. During the World War he was made fire chief at Old Hickory, Tenn., where one of the largest ammunition plants was located. Fisher came to Dubuque in 1921 on the recommendation of E. E. Carr, the first city manager, and the National Board of Fire Underwriters. He is a firm believer in fire prevention and in thorough inspection work to reduce losses.

Fire Prevention Exhibit at Fairs

Thirty-four county fairs, grouped into five circuits, will display an interesting fire prevention exhibit sponsored by State Fire Marshal S. L. Legreid.

In the foreground on one side will be an ironing board through which a hole has been burned by an electric iron. The guilty iron will rest on the floor beneath the board with the cord extending up through the hole. A sign will bear the warning "Do not leave electric irons with the current turned on."

On the opposite side will be a balance, in one scale pan of which will be represented a one gallon can of gasoline. In the other scale pan will be represented 86 pounds of dynamite, perfectly balancing the gallon of gasoline. A sign will convey the information that a gallon of gasoline vaporized has the potential power of 86 pounds of dynamite.

In the background will be a terse tabulation showing that 417 persons lost their lives through fire in Illinois last year and that the property loss is averaging $2,000,000 a month. The Fire Prevention Week slogan will set off the entire exhibit:

"To prevent fire is the personal responsibility of everyone. It should be taken seriously."

The county fairs at which the exhibit will be shown started July 28 and will run until September 20.

Waverly, Ia., Working for Rural Apparatus—Funds are being raised around Waverly, Ia., for the purchase of rural fire apparatus.

Rescue Company Formed in Kent, Ohio—A rescue squad headed by Assistant Chief Robert Clark has been formed in Kent, Ohio. A quantity of new equipment has been purchased, consisting of gas masks, inhalators and a rescue boat equipped with drag hooks and ropes. The squad will consist of eight men and will receive training from an Akron Fire Department instructor.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Which Solution Correct?

To the Editor:

I have been quite puzzled as to the "correct method" to get the nozzle pressures of the problem below. I have it figured out four ways and am not certain as to which is the proper solution.

Lately I have written you for information pertaining to hydraulics and am looking forward to your answers which I hope will be received soon.

Through FIRE ENGINEERING I have become acquainted with fire department hydraulics and have found the subject so interesting that I intend to master it some day. I will certainly appreciate what help you give me.

Problem

Engine Pressure, 200 lbs.

Feed line 3" hose, 150 ft. long, connects to two way-siamese, 2½" outlets; each lead 2½" hose, 200 ft. long. Nozzle tips, 1" bore.

What are nozzle pressures?

1. 150÷2.6=57.7 single line 2½" hose
   57.7×3.6=207.72 ft.=2 lines, 2½" hose
   207.72+200=407.72 ft. each lead=407.72 ft.
   N.P.=E.P.÷(1.1+KL)
   K=.105
   L=8.15
   N.P.=200÷(1.1+.105×8.15)=102.24. Answer.
1. Follow same routine as above only instead of using 200 lbs. as E.P., use ½ of the engine pressure, since two lead lines are to be solved:
   200÷2=100
   N.P.=100÷(1.1+.105×8.15)=51.12 lbs.
   Nozzle pressure of each lead line equals 51.12 lbs. Answer.
3. 150÷2.6=57.7 200÷3.6=55.55 Single line 2½".
   =55.55+57.7=113.25 ft. total single line 2½" hose
   L=2.265
   N.P.=200÷(1.1+K×L)=200÷1.34=149.
   N.P.=149 pounds. Answer.
4. 150÷2.6=57.7 200×3.6=720
   720+57.7=777.7
   L=15.55
   N.P.=200÷(1.1+.105×15.55)
   =200÷2.733=73.179
   N.P.=73.179 Answer.

Perhaps none of my solutions are correct. If so, please work out the correct method and let me hear from you. I can assure you that it will certainly be appreciated.

W. L. R.

Answer: We have checked over your solutions, and that indicated as No. 1 is correct.

No. 2 solution is incorrect in that you divide the engine pressure between the two lines. If you have 200 pounds engine pressure and this pressure is maintained, you will have 200 pounds no matter how many lines you use. Hence if you are using two parallel lines of 2½" hose, you should not divide the engine pressure, but instead, use 200 pounds on each line.

The solution No. 3 is incorrect in that you have apparently employed a 1" nozzle on the combined lines. You have the combined lines but have reduced the area of the nozzles by one-half.

Combining two 1" nozzles we get a nozzle of 1.414 inches diameter. The nearest size nozzle to this is 1⅜" nozzle.

The value of K, for 1⅜" nozzle on a 2½" line is .341.

Using this value of "K" in the solution No. 3, you get a nozzle pressure of approximately 107 pounds. This, you will note, differs slightly with the answer in No. 1.

Solution No. 4 is incorrect, as you have multiplied by 3.6 instead of by dividing by it, the latter being the proper procedure.

Course for Pump Operator

To the Editor:

I would like to know if a pump operator in a large city has a special course to take before he is permitted to operate a pumping engine, and if so, what the course deals with.

W. E. D.

Answer: Most fire departments recruit their motor pumping engine operators from among the members of the department. Several of the large departments maintain their own motor schools wherein motor apparatus operators are trained. Some cities do not pay additional compensation to apparatus operators over that paid first class firemen, while others make an exception and class the motor apparatus operator as engineers, paying them a slightly higher grade of pay than first class firemen.

Some departments that have civil service conduct examinations especially for motor apparatus operators, but these are in the minority.

Selection of Company Engineers

To the Editor:

With respect to volunteer fire companies, do you think it is wise that the "engineer" or in the case of non-pumpers, the "master mechanic" be elected along with other officers, and if so, where should he rank as regards Captain and Lieutenants? Or do you favor appointing such officer? And who should appoint him, the president or captain?

The difficulty frequently arises that the engineer, or whatever his title may be, feels that none should operate the apparatus without his knowledge and consent, except in case of a call to duty. It also frequently happens that the captain upon visiting quarters decides to try out the machine, or finds gas, oil or battery low and elects to replenish shortages at once rather than wait for the engineer. In any event, it is a fact that much more mileage goes on the machine when the engineer need not be consulted. What do you think of padlocking the hood and the engineer having the only key?

My own thought is that the Captain should always be in charge of the apparatus and superior to all other line officers, and therefore he should appoint an engineer suitable to himself, but should never move the truck without the approval of the engineer, who alone should have access to the motor.

B. P. W.

Answer: The engineer of a pumper company or the master mechanic of a non-pumper company in volunteer companies should be appointed rather than elected. Personal popularity should have no weight when it comes to operating fire apparatus.

Engineer, or master mechanic, should be solely responsible for the condition of the apparatus. Only by placing

the responsibility upon such men can the company be sure of having apparatus always in good condition. Where every man has his finger in the pie, nobody takes the responsibility and the likelihood is that at some time or other the machine will fail due to neglect.

The engineer or master mechanic usually ranks just below lieutenant.

It is our opinion that while the captain should be entitled to appoint his own engineers or master mechanics, he should, on the other hand, hold a supervisory capacity with regard to the apparatus rather than attempt to service and operate it.

In some volunteer departments here there is a close co-operation and harmony between the various companies, the employment of master mechanics and engineers falls to one of the higher officers of the department, such as Assistant Chief, Chief Master Mechanic or Chief. But where each company is independent, maintaining its own individuality, this latter plan might not prove very harmonious.

Testing Engines

To the Editor:

Recently we had a test of two 1,000 gallon pumpers. The layout consisted of three 100 ft. lines of 2½" new hose siamesed into a Hart turret pipe with 2" tip. One pumper had two lengths of 6" suction hose, 140 lbs. pump pressure. The pitot gauge needle vibrated from 58-68 lbs. nozzle pressure. The other pumper had two lengths of 5" suction hose, 110 lbs. pressure and pitot gauge vibrated 60-64 lbs. nozzle pressure. What was the total amount of gallons delivered by each pumper, with each having about a 4 ft. lift?

Also, what is the proper hose layout for testing 1,000 gallon and 750 gallon pumpers?

G. H. N.

Answer: Where a dial on a gauge oscillates between two figures, the reading of the gauge is taken as the pressure midway between the two extremities of oscillation.

Thus in the case of the first pumper, where the needle vibrates between 58 and 68 pounds pressure, the nozzle pressure would be taken as 63 pounds.

With the engine whose gauge shows 60 to 64 pounds pressure, the pressure would be 62 pounds.

Jersey City Firemen Battle Fire in Ship's Hold

For five hours firemen from Jersey City, N. J., and New Yark City, fought a fire in the hold of the Dollar liner President Harrison, just before it was ready to sail. One person was hurt before the fire was under control.

The discharge from a 2" nozzle at a pressure of 64 pounds per square inch is 951 gallons per minute; the discharge from a 2" nozzle at 62 pounds pressure per square inch is 936 gallons per minute.

Capacity test at 120 pounds pump pressure.

First pressure test at 200 pounds pump pressure.

Second pressure test at 250 pounds pump pressure.

With a 1,000 gallon pumper the layout for the first test would be two 100 ft. lines of 2½" hose siamesed into a 2-inch nozzle.

For the second test, either of the three following layouts might be used:

One 100 ft. line of 2½" hose with 1⅛" nozzle; one 150 ft. line of 2½" hose with 1½" nozzle; one 200 ft. line of 2½" hose with 1⅜" nozzle.

For the third test, a 500 ft. line with 2½" hose with 1-inch nozzle is usually used.

For testing the 750 gallon pumper, the layouts would be as follows:

First test, two 100 ft. lines of 2½" hose with 1⅜" nozzle.

For the second test, one 300 ft. lines of 2½" hose with 1⅛" nozzles is used; the third test uses the same layout as the second test, but a gate valve is employed to control the pressure.

Water Tower Placement

To the Editor:

In your issue of July 9th, 1930, a solution for finding proper distance of water tower from building is given by one of your readers. In this solution there appears a portion which is not exactly clear—"multiply the 'means' 65×20 and divide by 'extreme' 20 and the answer is 52 feet exactly, which is the position the tower should be placed from the building." Please explain in detail how this answer of 52 feet is obtained?

According to the FIRE ENGINEERING book on hydraulics the formula AE=BE×BD÷CD, gives 50 feet.

L. B. H.

Answer: You are correct both in your method of solving the distance the water tower should be placed away from the building as well as in your results.

The height of the nozzle above the street does not enter into the question of how far the nozzle should be placed away from the building to secure a certain penetration—provided the comparative height of the nozzle and the point on the building of the nozzle is established. In other words, taking the layout shown in the diagram in the July 9th issue of the journal, the tower could be increased by a 100 foot height and the building likewise, without changing the distance of the nozzle from the building.

When solving for the distance tower should be placed from the building to secure certain penetration on the ceiling of the fire floor, the only figures which are taken into account are the height of the sill above the nozzle, the height from the sill to the ceiling, the penetration from the face of the building to the point where the stream strikes the ceiling, and the distance of the nozzle from the building. The latter factor is the one which you are solving for, and which can be secured when the other three are known. The 65-foot height of the water tower does not enter into the proportion at all, although it is necessary that this be known in order that the height of the sill and ceiling above the water tower nozzle may be determined.

Firemen Decide Art Dispute

Regardless of the art standards established by a resident of Winona Lake, Ind., members of the fire department still appreciated a reproduction of the famous Venus de Milo.

A female resident decided that the statue which for twenty years was on public exhibition, should wear something for the sake of modesty. The statue was moved to a position near the fire department and that gave the art reformer an opportunity to plant poison ivy around the base of the figure. She hoped that the ivy would grow and grow until the indecent figure was all covered up.

But firemen decided otherwise. With the aid of a hose line, the ivy was washed away and the statue now stands without any plant protection.

Station for South Ozone Park, N. Y.—A $60,000 fire station will be completed by January 1 in the South Ozone Park section of Greater New York.

FURNITURE FIRE MAKES HARD FIGHT FOR WASHINGTON FORCE

Eight Firemen Injured—Five Alarms and Two Special Calls Sounded for Blaze in Two-Story Furniture Building

FIVE alarms and two special call assignments were necessary before a fire that started in a three-story building occupied by a furniture company in Washington, D. C., was brought under control. The building was twenty-five years old and occupied a plot of land 121 by 278 feet. The

Five Alarms Were Turned in Before This Fire Could Be Brought Under Control

structure consisted of brick and iron with wooden partition walls. Even though the building covered a large area, no sprinkler protection was provided. The sole private protection consisted of a number of forty-gallon acid and soda type fire extinguishers.

The fire is believed to have been started by a careless smoker but there is not enough evidence to substantiate this theory. It originated in the middle of the second floor. The fire is believed to have started about 5 p.m., and it was well under way by the time the first alarm was sent.

Upon receipt of the first alarm, three engine companies and one truck company responded. The third alarm brought six additional engine companies and two truck companies; the fourth, three more engine companies and one truck company, and the fifth nine engine companies and two truck companies. Two special calls were sent.

The special tools used consisted of four wagon pipes, two turret pipes and one water tower. No outside aid was necessary.

While no lives were lost, eight firemen were injured. It was not until nearly thirteen hours after the first alarm that the last company at the fire returned to its quarters.

The building contained quantities of furniture and household material. The loss on the building was estimated at $50,000 while that on the contents was computed at $60,000. An adjoining furniture warehouse was damaged by smoke and water to the extent of $15,000.

Three Killed by Alcohol Blast

Three men were burned to death and one other died two days later following an explosion of alcohol fumes in the dehydrating room at the plant of Richards & Company, manufacturing chemists, on Ludlow street, Stamford, Conn. Static electricity is given as the cause of the explosion that took a toll of four lives and did fire damage to the factory buildings amounting to $35,000.

The entire Stamford fire department under the command of Chief Victor H. Veit was called into service by a second alarm from the company's private box. Two of the bodies of the workmen were found among the mass of brick in the dehydrating room and the third in an adjoining building used for storage purposes. The latter building collapsed.

From the position of the bodies found in the dehydrating room, it appeared as though the men were not rendered unconscious by the first blast. One body was found by firemen at the top of a fire escape leading from the building and the second was found a few feet away. All three bodies were burned to a crisp and the fourth man was so terribly burned that he died at the Stamford hospital two days later.

The first explosion occurred at 9:06 o'clock in the morning and a first alarm was turned in from the company's box. When Chief Veit arrived on the scene he immediately ordered a second alarm that brought out the entire department personnel along with the men who were on the off-platoon. The company's fire department was also pressed into service. In all, twelve lines of hose were used on the fire, seven by the city department and five by company employees.

Several streams of water were played on three large tanks of denatured alcohol to keep them from exploding as the fire raged alongside. Several hundred windows in other buildings at the fire were broken and the large tanks were thrown out of line but were not blown off their bases.

The fire was officially reported out at 10:40 o'clock. Despite the danger of another explosion, firemen went right up against the burning buildings, led by Chief Veit and Fire Commissioner K. W. Carter. The storage shed was constructed in 1927 following a similar fire in October of that year. An elevator shaft connects the dehydrating room and the storage building, and fire from each building is believed by fire officials to have jumped along the shaft.

Early published reports of the fire listed the Richards &

Part of the Stamford Department Working at the Plant Fire

Company as an auxiliary of the E. I. DuPont de Nemours Company but this connection has been denied by officials of the latter company. Coroner John J. Phelan of Fairfield County has absolved the Richards firm from all blame in connection with the death of the four workmen.

THOMAS F. MAGNER.

Five Boys Play Roles of Heroes

Twenty apartment house fires were set in the Bushwick section of Brooklyn, N. Y., by five boys ranging from thirteen to nineteen years, in an effort to rob homes during the commotion that would ensue. It was their practice to fire a heap of newspapers in the hallway, give the alarm, and play the hero in helping people out of the building. The boys would then raid the emptied apartments.

Persons rescued were free in showering praise on the boy who they described as "having lacquered, perfumed hair and attired in a polo shirt." This hero figured in so many fires in that section that police were dubious. They investigated and succeeded in rounding up the gang of five boys. The older boys were held on arson charges while the younger ones on charges of being wayward minors.

Weekly Drills Started in Oil City, Pa.—Weekly drills have been started in Oil City, Pa., for members of the fire department to give the men a better working knowledge of the equipment provided.

Firemen Want Chief Ousted—A petition was presented by 127 firemen of Miami, Fla., asking that Chief E. J. Roberts be removed from office. A few weeks ago the chief ordered his men not to sit in front of the fire houses during their off hours. He said that the sight of well fed men sitting in the shade of the station playing checkers or reading was not a pleasant one for the hundreds of idle and hungry Miami taxpayers.

WHAT'S BURNING

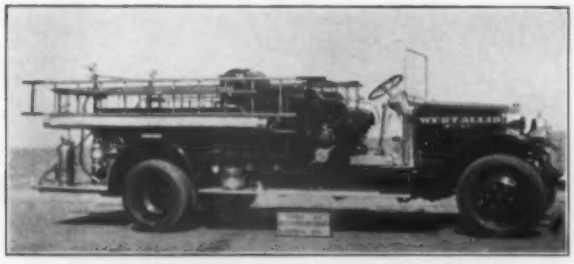
THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Week Ending August 8

SAN ANTONIO, TEX.—Building of Motor Truck Sales Co..... 40
FRAMINGHAM, MASS.—Home and racing stable of J. R. McComber 170
MIDDLETOWN, OHIO—Whorley Garage and 40 cars..... 25
ZANESVILLE, OHIO—Hillside barbacue and dance hall..... 25
TERRE HAUTE, IND.—St. Benedict's Catholic Church destroyed.. 450
HARLINGEN, TEX.—12 refrigerator cars and icing docks of Md. Pacific Lines 40
CLARKSDALE, Miss.—Miss. Valley Hardwood Lumber Co..... 25
MONROE, LA.—500,000 ft. of timber of Ouachita Parish..... 25
ELMER, N. J.—A. Feldman garage and 14 cars..... 60
VANCOUVER, WASH.—Block of one and two story bldgs..... 270
CLAYTON, N. Y.—50 ft. cruiser and 25 ft. motor boat at Merfew shipyards 25
MOTGOMERY, ALA.—2 story brick school at Camp Hill..... 25
WENONA, ARK.—5 million ft. lumber at Tschudy Lumber Co..... 125
NEW YORK, N. Y.—N. N. Velodrome at 225th St., near B'way.. 125
NEWPORT, KY.—Highland Guernsey Farm..... 60
TIPTON, OHIO—Grain elevator of H. R. Kenberry..... 30
CANTON, OHIO—Land O'Dance hall and 29 used cars..... 85
STAMFORD, CONN.—4 Storage Bldgs. of Richards Co..... 25
CANTON, OHIO—Explosion in furnace div. of Republic Steel Corp. 50
MARKED TREE, ARK.—Plant of Tschudy Lumber Co..... 125
MARION, ILL.—Cole & Sons garage bldgs. destroyed..... 50
ST. LOUIS, MO.—5th and 6th floors of Rumsey Bldg..... 25
CASHMERE, WASH.—Schmitten sawmill and Box factory..... 50
JEFFERSON CITY, MO.—Suburban mansion of Lee Jordan..... 45
HOUSTON, TEXAS—Bakery, barber shop, cleaning plant and adj. property 170
WEEHAWKEN, N. J.—Chicken loading yards of Erie R.R..... 105
CEDAR POINT, OHIO—Summer homes of A. Harbauer & Anna Rosenweig 55
COVINGTON, OHIO—Barn & adj. property of M. E. Quick..... 30
GORE, VA.—12 home & business establishments..... 450
BLANCHARD, MICH.—Meat market of W. Mallery & adj. prop..... 25
LOS ANGELES, CAL.—Los Angeles Whse. Co.'s 2 upper floors.... 900
PORT HENRY, B. C.—Sawmill & adj. prop. of Commercial Lumber Co. 140
FORT WILLIAM, ONT.—Shed No. 2 cont. binder twine & adj. property 900
WILLOW HILL, ILL.—Dwelling and 6 business bldgs. 25
WAYNE CITY, ILL.—Business block destroyed 40
BANKS, ARK.—Store of R. M. Childs and adj. property..... 30
ASSONET, MASS.—Ice of Arctic House Co. 25
COLLEGE CORNERS, OHIO—Lumber yard, grain elevator, etc... 160
BALTIMORE, MD.—Fairfield Shipbuilding plant..... 170
HOBOKEN, N. J.—Gatti Paper Stock Corp. plant damaged..... 65
HAMILTON, ONT.—Canadian Iron Foundry plant destroyed..... 85
VINCENNES, IND.—Baltic mills destroyed 130
CHICAGO, ILL.—Ill. Maleable Iron Co. 25

Week Ending August 15

FRUGALITY, PA.—Hotel, mdse. store, four garages..... 25
COOPERSBURG, PA.—Barn of J. Stephens and adj. prop..... 25
NEW ORLEANS, LA.—Chalmette Petroleum Corp..... 30
BLYTHEVILLE, ARK.—Bldg. of W. L. Denton Chevrolet Co... 65
MEMPHIS, TENN.—Whse. of J. E. Stark & Co..... 25
SAVANNE, ILL.—Twenty-four used cars and forty-four barrels of oil 25
AGAWAN, MASS.—House of John Wysocki, house & adj. prop. 30
BUFFALO, N. Y.—J. F. Pfister Co., pickle plant..... 85
HARRISBURG, PA.—Patterns at Harrisburg Mfg. Co..... 30
MEXICO, MO.—Fuel oil tank and 200,000 gals. of oil..... 40
HOOD RIVER, ORE.—Apple Growers' Assn. whse. destroyed..... 85
SPENCER, IA.—Grocery store and bakery of Dewey Groves..... 25
LAKEVILLE, CONN.—Barn and livestock of Frank White..... 25
WARREN, MASS.—Fyans, Fraser & Blackway machine shops.... 25
GREENVILLE, MISS.—Reid Bros. grocery store damaged..... 40
VANCOUVER, B. C.—New Canadian Natl. R. R. dock.....1,125
GIBSON, N. Y.—Nine residences and two barns..... 40
BROOKLYN, N. Y.—Frame shed of Balsa Wood Co..... 25
DUNCAN, OKLA.—Long Bell Lumber Co.'s yards..... 65
CHANDERVILLE, ILL.—Grocery store of Johnson & Son and adj. property..... 85
LAWRENCEVILLE, VA.—St. Paul's Industrial Institute..... 30
ROCHESTER, N. Y.—F. W. Struck farm..... 25
LESLIE, MICH.—Bartlett's Beacon dancing pavillion..... 40
WEST FRANKFORT, ILL.—Buell's ready-to-wear shop..... 25
NATIONAL CITY, ILL.—Barns at Natl. Stock Yard..... 25
HOLLAND, N. Y.—Bellaire Basket Co. plant destroyed..... 85
TORONTO, ONT.—Five-story brick bldg. on Lake St..... 30
LANESBORO, MINN.—A Boyum elevator, garage of J. Jefferies and adjacent property 25
MADISON, N. J.—Cabin on Thos. S. Bassford estate..... 25
PORTLAND, ORE.—F. C. Stettler paper box factory..... 650
LEXINGTON, KY.—Barn and 16 horses at Ky. Assn. Race Track.. 45
GREENFIELD, IA.—Bakery of Mrs. R. Hume and adj. property... 25
PROVIDENCE, KY.—Shed of Providence Coa. Co. & adj. prop..... 40
FRANKLIN, PA.—3 story apt. house on 15th St..... 40
BEEVILLE, TEX.—E. B. Hall cotton gin destroyed..... 25
PORTLAND, ME.—3½ story wood bldg. on Congress St..... 25
NEW YORK CITY—Coal yd. of J. Ruppert Brewery..... 40



Two Pumpers Delivered to West Allis, Wis.

Engineers of the Wisconsin Inspection Bureau tested and approved two Pirsch pumpers delivered to West Allis, Wis. One was rated at 1,000 g.p.m., and the other at 600 g.p.m. The photograph shows the 600-gallon size. Both pumpers are provided with 80-gallon booster tanks, ladders, fire extinguishers and other appliances.

Chief Toomey of Chattanooga, Dead

William M. Toomey, head of the fire department in Chattanooga, Tenn., since 1906, passed away in his sleep on August 7. It was late in the morning before his family realized that the chief was dead, for it was assumed that he was still asleep.

The Late Chief W. M. Toomey

Chief Toomey was born January 16, 1853 and came to Chattanooga as a young man. He became expert in the cotton compress line and then entered the city employ.

He was first appointed captain of the chemical company on March 10, 1892 at the age of thirty-nine. He was made chief of the department in 1906 succeeding T. S. Wilcox who resigned at that time. Chief Toomey remained as head of the department since that date.

Mayor Bass, in commenting on the chief's sudden death, said:

"Chattanooga has never had a more faithful public servant than Chief Toomey and no fire department in the country has had a more efficient chief. He was popular with his men as well as with all who knew him. His death was a distinct loss to Chattanooga and he will not easily be replaced. Personally, I shall miss him very much."

He was a member of the Knights of Columbus. Since the death of Mrs. Toomey in 1916 he lived with a married daughter. He is survived by a brother, a half brother, two daughters, twenty-one grandchildren and two great-grandchildren.

Out of respect for the late chief all the fire stations in the city were draped in black and white, and they will remain so for thirty days.

Fire Marshal Position Open

An examination will be held soon by the U. S. Civil Service Commission, Washington, D. C., to fill a vacancy in the fire department of the District of Columbia. The entrance salary is $5,000 a year and applications must be filed not later than September 17.

The fire marshal will be required to act as chief fire prevention assistant to the chief engineer of the fire department and he will be in charge of the fire prevention division. Full information may be obtained by writing to the Commission.

New Hydrant Color for Ottumwa, Ia.—All hydrants in Ottumwa, Ia., are to be painted a bright orange with a distinguishing color for the top to characterize the type stream that may be obtained.

Plaque for Late Lebanon Chief—As part of the ceremonies of the Oregon fire chiefs in Corvallis, a plaque was unveiled in the Lebanon fire hall in honor of R. L. Gilson, late chief. The plaque was cast from brass couplings furnished by every department in the state of Oregon. It was designed by Avard Fairbanks.

FIRE AND THE FIRE HAZARD; ITS MENACE TO HUMAN LIFE

What Statistics Show as to Fire Casualties by Location, Age and Sex and Type of Occupancy—Seasonal Hazards

TO attack any phase of our vast fire loss, it is first essential to have at hand detailed information of that loss. Such information should answer among others the questions: "What is our annual loss?" "What types of buildings are being burned?" "Where is the greatest loss?" "Are they preventable?" "How many lives are lost?" With the foregoing questions answered, it is possible to approach the problem is a scientific manner. Salient features stand in bold relief designating points at which effort must be concentrated.

The actual fire casualty statistics of the nation, however, have never been determined beyond the point of conjecture. We have never answered authoritatively the question, "How many persons are being killed and injured by fire each year?" Many causes have contributed to this deficiency among which are lack of centralized interest, dearth of machinery for reporting such facts and the frequent presence of intermediary causes.

Fire Casualty Statistics

In an attempt to supply this information the Fire Casualty Statistics Committee of the National Fire Waste Council conducted a series of six surveys of three months' each extending over a period of three years. It was not the purpose of these surveys to tabulate statistics for the entire nation nor even for certain states for the full period of a year. Rather it was the desire of the Committee to procure as accurate information as possible with the facilities at hand of deaths and injuries from fire in a predetermined group of states, the population and general characteristics of which were such as to constitute a material and representative sector of the entire nation.

In each survey eight of fifteen states were represented with aggregate populations of from 26,000,000 to 46,000,000. Three surveys were made during the months of April, May and June and three during November, December and January. The purpose of this division was to make possible a comparison between the casualties resulting in the three winter months and the three more moderate months immediately preceding summer. The sources of information, while not beyond question, were the most accurate obtainable. These consisted of newspaper clippings which were complete for the states being surveyed and which were checked carefully to prevent the possibility of duplication; and personal reports from several fire chiefs and fire marshals. It will be seen, therefore, that the main deficiency was the fact that reported deaths and injuries may not have constituted the full number. Statistics throughout the course of the six surveys were compiled for the following states:

Arkansas	Missouri
California	New Mexico
Colorado	North Dakota
Illinois	Ohio
Indiana	Oklahoma
Iowa	South Dakota
Kansas	Tennessee
Kentucky	Texas
Massachusetts	West Virginia
Michigan	Wisconsin
Minnesota	Wyoming

Seasonal Hazards

An interesting disclosure was the great increase of deaths and injuries during the months of November, December and January. During these periods the death rate per million of population as disclosed by the individual surveys, extended from 56.9 to 65.1, whereas the death rate for the months of April, May and June was much lower, ranging from 25.3 to 37.1. Injuries from fire display the same tendency, though in not quite as marked proportions, varying from 119.00 per million population to 160.00 for the winter months as compared with 70.1 to 101.2 for the months of April, May and June. The apparent reason for this is that heating apparatus, chimneys and flues and the practice of starting fires with flammable liquids constitute even greater hazards to life than to property. The months of April, May and June are not entirely without this hazard and had the survey been conducted during a period in which the hazard was at its minimum, the comparison very likely would have been even more striking.

Trend in Deaths and Injuries

The tabulated statistics shown herein are a consolidated summary of the six surveys revealing fire casualties by location, age and sex, type of occupancy and cause.

It will be noted from Table I that no less than 64% of the deaths and 81% of the injuries reported were among adults. Deaths among children under ten years of age constituted 29.7% of the total, but this class suffered only 11.3% of all injuries which would tend to demonstrate the comparative lack of ability of this class to preserve life once it is threatened. The large proportion of deaths and injuries occurring in buildings of the dwelling class demonstrates forcefully the truth and efficacy of the principle that fire prevention should start at home. Exactly 66% of all deaths reported occurred in dwellings, apartments, hotels, or rooming houses. Improved principles of construction have always been urged for public buildings as a protection against repetition of the holocausts of the past. This is, of course, entirely appropriate, but on the basis of the foregoing statistics it would seem even more essential that these principles be adhered to in buildings occupied as domiciles. This may be impractical or impossible in buildings already erected, but the rigid observation of the principles of carefulness and fire safety in the home is not expensive and for that reason their violation is all the more inexcusable.

In Table II deaths and injuries have been tabulated according to causes, revealing the fact that 89.4% of all deaths and 77.6% of all injuries were caused by actual burns. This item is sub-divided into causes of fire or the material burned. For example, in sub-item 1 buildings, tents, autos, etc., are the objects burned and no attempt has been made to set forth the actual causes of such fires. Sub-item 2 is similar. Sub-items 3 to 9, however, are tabulated on the basis of cause and designate that though the resultant fire may have destroyed any building in which it originated it was communicated directly to the person of a participant or bystander. Sub-item 4, "Flammable liquids," includes all deaths and injuries caused by the use of gasoline, kerosene and other volatile liquids. The division of this classification, "In heating devices," applies specifically to such deaths and injuries as were incurred in attempts to ignite fires with these liquids. Open flame devices referred to in sub-item 5 are primarily fire places. Sub-item 10 "Celevrations" includes all those fires resulting in casualties which were the result of special holiday hazards. A comparatively small number of cases not lending themselves readily to any of the above classifications were assigned to sub-item 11 "Miscellaneous."

Items 2 to 6 are self-explanatory and require no comment other than to point out that though deaths and injuries properly classified under items 2 and 4 sometimes run into large numbers in specific instances, the total is rather small in comparison with the aggregate.

Throughout the course of the survey it was conclusively demonstrated that the underlying cause of the great majority of all deaths and injuries was none other than carelessness. Many specific instances were brought to light, a few of which were unusual and dependent upon a peculiar chain of circumstances to bring about the casualty, but the great majority were repeated instances of violations of the principal tenets of care.—*Fire Prevention Bulletin, Chamber of Commerce of U. S.*

Lamp for Flashlight Photography

An incandescent lamp has been developed for taking flashlight pictures, thereby doing away with the dangerous flashlight powder mixtures. With the lamp, smoke and fire are avoided.

The lamp consists of a clear bulb of standard design with the flashlight element coated and with a quantity of very thin aluminum foil in crumpled sheet form within the bulb. The bulb is filled with oxygen. When the electrical circuit is closed, the foil is lighted. A new lamp is needed for each flash.

Manhattan, Kans., Buys Apparatus—Manhattan, Kans., purchased a combination ladder and pumper for $10,500. The pump is rated at 600 g.p.m.

D. Miller, Jr., With Boyer Fire Apparatus—Donald Miller, Jr., is again with the Boyer Fire Apparatus as their Germantown, Pa., branch representative. He was with this organization two years ago and then went into other lines of business.

Operation of an Industrial Fire Brigade

Here is one company that believes in the value of an efficient industrial fire brigade. French & Hecht, Inc. with factories at Davenport, Iowa, and Springfield, Ohio, have set an excellent example in the organization of this department at their Springfield plant. Mr. E. F. Myers, superintendent of the plant, explains this fully as follows:

"While we have no desire to set our Industrial Fire Brigade up as an example of perfect performance, we do feel however, that we are receiving a great deal of good for effort expended in maintaining such a brigade, fully manned and efficiently trained, ready to handle a fire immediately after it occurs, which after all, is the most essential thing in fire fighting.

"Since we are some distance from the center of the city, and the nature of our business, which is the making of metal wheels exclusively, demands the use of a large number of oil fires which are fed by pipe lines through tunnels over the entire plant, it was decided to organize a trained fire brigade

Prize Winning Brigade of French and Hecht, Springfield Plant

suitable for the necessary protection of our property at all times. This we did, back in 1913, consisting of two companies of seven men each, with one Captain to each company and a Chief in charge of the Brigade. You will notice in the accompanying picture that the men are regular workmen, mostly on the piece work basis, and are subject to call from their work by the use of a fire whistle located on the top of the factory, which blasts certain signals for certain parts of the plant. These minute-men immediately report to their respective positions at the various hose or reel houses located advantageously about the plant.

"Certain dates are set aside each month for the drilling of these men, who go through the various practices necessary to acquaint themselves with the equipment with which they must work.

"It might be interesting to know that after an alarm is sounded, not more than three minutes' time is consumed in getting from their machines at which they work, to any place in the factory, with water at the hose nozzle, ready to fight the fire.

"While we coach our firemen in up-to-date fire fighting methods, we find, by maintaining such a brigade of men, always on the alert, looking for and correcting hazards, we eliminate the cause of the fire and therefore, correct the trouble before it happens.

"These men are proud of the fact that they hold the State Championship for Efficiency in Industrial Brigades, and with it a beautiful cup, presented by the Fire Marshal of Ohio, which was won in competition with other Industrial Brigades at the State Capitol in Columbus, Ohio."

Chief Herring Honored on Anniversary

A crowd of two hundred persons gathered at the small park near the home of Chief Al Herring of Murphysboro, Ill., to celebrate the chief's thirtieth anniversary as head of the fire department. The American Legion Band played a number of selections and in the words of the Chief, "Put on quite a show."

Solon, Ia., Erecting Fire House—A brick fire station is being erected in Solon, Ia., for the new fire apparatus.

Burlington, Ia., Rejects Firemen's Increase—The council of Burlington, Ia., rejected the plea of the labor assembly for an increased wage scale for the firemen. Some time ago the firemen petitioned for a ten-dollar increase but no action was taken.

HOW THE FIRE INSPECTOR CAN KEEP FIRES FROM RESIDENCES

Some Suggestions He Can Make to Householders in His Rounds — He Can Help in Maintaining Fire Prevention

By CLAYTON L. BARGREN,
Rockford, Ill.

IN HIS ROUNDS the fire inspector will often meet with many types of fire hazards in residences. The following are some suggestions that offer information which he can spread among householders that will assist in keeping down the fire loss:

The home owner should keep in mind the fire hazards and risks which might tend to destroy all that he has labored to accomplish.

It means the furnace or boiler must be in first class working condition. See that flue stops and chimney bricks are not loose. Soot and sediments deposits at the base of the chimney can be removed through the clean-out. Clean the chimney at different times, as a large deposit of carbon not only is detrimental to the proper working of the furnace, but is an excellent conductor of lightning.

Discontinue the piling of ashes against wooden partitions or in wooden containers. It would be well to have the roof covered with fire resisting material such as roll roofing, slate or tile. Try and stop the habit of piling paper, rags, and refuse in corners, closets, attic and basement.

The use of safety matches should be encouraged throughout the house. Looking in clothes closets with lighted matches is dangerous, and a reliable flash light should be substituted. Lighted cigars and cigarettes should never be placed on table tops, chair-arms, etc., but should be placed in the proper receptacles.

Radio antennaes must have a good lightning arrester or throw-off switch, and a fuse block should be inserted between the socket plug and unit. Never leave the radio charger on when no one is home, excepting the better eliminators. All electric contrivances must be in good operating order, without exposed or loose wires. Flatirons should be disconnected when left for any length of time. It is a dangerous practice to leave clothes to dry on a steam radiator.

The gas stove is very dangerous, because of the possibility of a leak, or of leaving a jet open. For this reason the habit formed of trying each burner before retiring is one to cultivate.

Keep one or more windows open at the top or bottom at night in your bedroom because of the danger of the furnace or boiler throwing off carbon monoxide gas; of the ice-box throwing off sulphur dioxide or bucane, or of the gas log throwing off carbon dioxide.

Arrange the bedrooms, if possible so that you may have o ready exit to front and rear stairways and porches. Do not leave small children for any length of time while a cook stove, coal range, or gas stove is in operation.

Remember never to pour gasoline, kerosene, or any inflammable on a fire already started. The use of naptha and various cleaners about the house should stop. Send the clothes to a good cleaner and let him take the chance of having an explosion.

Oily mops and rags should be kept in metal containers away from all heat and sunshine. A good fire extinguisher should be kept in every home in a convenient place.

Hillsdale, Mich., Wants Pumper—Hillsdale, Mich., is working for the purchase of a new pumper.

Jackson, Mich., Buys Pumper—Jackson, Mich., has ordered a 1,000-gallon Mack Pumper for $23,300.

Hallam, Pa., to Erect Fire House—Contracts have been awarded for the construction of a new fire station in Hallam, Pa., to cost $12,000.

Youngstown to Have Junior Department—Youngstown, Ohio, is to have a junior fire department. About five thousand youngsters attended a meeting at which the plan was presented. It is being sponsored by Chief Callan and a local newspaper.

Apparatus Salesman Dies at Convention—E. E. Perry, representative of the American-LaFrance & Foamite Corp., died while attending the convention of the Montana State Firemen's Association convention in Missoula. He died in his hotel room while getting ready to leave for hospital treatment. He was forty years old and is survived by his mother and his widow.

Fire Department Cooperation

(*Continued from page 690*)

corporate limits and the liability in case of injury to firemen or damage to equipment should be thoroughly investigated and adequate legislations provided when considering the establishment of mutual aid systems.

In the state of Massachusetts we have a law which provides for fire departments to go to the aid of other cities and towns, if the head of the fire department has been authorized to extend such aid. It further provides that the aided city or town may compensate any city or town rendering the aid for any damage done to its property and reimburse it in whole or in part for any payments lawfully made to any member of its fire department or dependents. The law reads as follows:

> Section 59A. Cities, towns and fire districts may, by ordinance or by-law, or by vote of the board of aldermen, selectmen or the prudential committee or board exercising similar powers, authorize their respective fire departments to go to aid another city, town or fire district in extinguishing fires therein, and while in the performance of their duties in extending such aid the members of such departments shall have the same immunities and privileges as if performing the same within their respective cities, towns or districts. Any such ordinance, by-law or vote may authorize the head of the fire department to extend such aid, subject to such conditions and restrictions as may be prescribed therein. The words "fire department" as used in this section shall mean lawfully organized fire fighting forces, however constituted.
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> Any city, town or district aided under and in accordance with this section may compensate any city, town or district rendering aid as aforesaid for the whole or any part of any damage to its property sustained in the course of rendering the same and may reimburse it in whole or in part for any payments lawfully made to any member of its fire department or to his widow or other dependents on account of injury or death suffered by him in the course of rendering aid as aforesaid or of death resulting from such injuries.

This is entirely permissive, and has no force or effect as a law which would compel such cities or towns to reimburse. It was therefore suggested in our Boston report that Section 59A be amended by striking out same and in place thereof inserting the following:

> "Cities, towns and fire districts, shall when called upon by the authorized power in charge of the fire fighting force of any other city, town or fire district aid in the extinguishing of fires therein and while in the performance of their duties in extending such aid the members of such department shall have the same immunities and privileges as if performing the same within their respective cities, towns or districts. The words 'fire department' as used in this section shall mean organized fire fighting forces, however constituted.
>
> "Any city, town or district aided under and in accordance with this section shall compensate any city, town or district rendering aid as aforesaid for any damage to its property sustained in the course of rendering the same and shall reimburse it for any payments lawfully made to any member of its fire department or of his widow or other dependents on account of injury or death suffered by him in the course of rendering aid as aforesaid, or of death resulting from such injuries.
>
> "The payment of damages or reimbursement for payments so made may be recovered in an action of contract."

In New York State provisions for covering injury to men, or damage to apparatus are cared for very well for volunteer fire departments by state legislative statutes but when paid men are involved, however, the law leaves something to be desired. Some towns and villages have local ordinances protecting their men. There is no apparent reason why the law applying to volunteer departments could not be extended to paid departments as well.

The laws of the state of Wisconsin specifically provide that when a city or village contracts to furnish outside fire protection, that it shall be subject to the same liability for property damage and personal injury as when providing the same services within its limits. If the municipality is carrying insurance to cover its liability under the workmen's compensation act, then the charges to be made for outside fire service should include a fair portion of this cost. If such liability insurance is not carried, then the contract should provide for the assumption of liability under the workmen's compensation by the municipality to which service is furnished, in the case of injuries incurred on outside calls.

Similarly a recent decision of the Workmen's Compensation Board in Pennsylvania, relative to volunteer firemen injured while on the way to fight a fire in a neighboring borough, states that these firemen are entitled to compensation from the borough in which their company is located.

It would be possible to continue on indefinitely discussing mutual aid systems but time prevents. There is undoubtedly an increased interest in the idea of closer cooperation between fire departments and with greater realization of the advantages of such arrangements and more adequate legal protection and authority. Mutual aid between cities and towns is bound to advance not only in New England, but all over the country.

(From a paper read before the annual convention of the New England Association of Fire Chiefs.)

Compressed Gas Hazards

(*Continued from page 692*)

due to its explosibility when mixed with air in proportions from 3.3 to 10.6 per cent. Its ignition temperature is about 960° F.

When cylinders are exposed to fire, they are apt to let loose unless kept cool with water streams. Ethane is made by distilling liquified natural gas. It is considered extremely dangerous from the explosion standpoint.

Hydrogen

Hydrogen is a gas which is extremely light; it is colorless, odorless, and tasteless. It weighs about one sixteenth that of air. It burns with a pale blue flame, producing water with a greater relative heating effect than any other combustible material. The temperature of the flame is about 3,600° F. It is used extensively in hardening of oils and fats, notably soap, edible and cooking fats. It is also used as a compressed gas for oxy-hydrogen cutting and welding in metal work, etc. Balloons are commonly inflated with it. It is a very inflammable gas with a wide explosive range (9.5 to 66.5 per cent). It is found in steel cylinders under high pressure.

If hydrogen leaks through a small opening of a cylinder, the temperature of the gas remaining in the cylinder is increased by this process and ignition or explosion may result. It is not poisonous to inhale.

Hydrogen Sulphide

This is a gas often present in various industrial plants as well as in mines and tunnels, and is an extremely poisonous gas. Acute poisoning of men can be produced by low concentration of this gas, and may result in respiratory paralysis followed by heat failure and death.

It is encountered in various stages of the manufacture of sulphuric acid, and in the distillation of petroleum, particularly those oils known as high-sulphur crudes; also about some gas wells, gas plants and smelters. It is a colorless gas, which, in low concentration, has the distinct odor of decayed eggs and in mines has been termed "stink damp." It burns with a bluish flame, forming sulphur dioxide and water. In seven parts of air a mixture is formed which when ignited explodes with violence. Wherever hydrogen sulphide exists, the possibility of poisoning is present. Its toxicity is comparable to hydrocyanic acid gas (prussic acid).

When asphyxia from this gas is complete it results in almost immediate unconsciousness, and frequently death follows be-

Hoboes Trapped in Abandoned New York City Tenement

Several hoboes who had made their summer home in an abandoned tenement house in the East Side section of New York City, were trapped by fire. The blaze had made the iron fire escape on the sixth floor as hot as a griddle, so that it was impossible for one Knight of the Road to escape. He was carried down a ladder. The building was abandoned so that the city could widen a street.

fore rescue can be accomplished or even attempted. In cases where rescue can be accomplished the victim recovers almost immediately.

Hydrogen sulphide in low concentration produces symptoms of headaches, sleeplessness, dulness, dizziness and weariness. Pains in the eyes, followed by conjunctivitis is fairly constant. Further poisoning produces depression, stupor, unconsciousness and death. Treatment of acute cases consists in immediate removal from exposure to the gas and the immediate administration of artificial respiration. The breathing of oxygen is advisable when possible.

Where hydrogen sulphide gas may exist, good ventilation results in a decrease in the number of accidents. The canister type of mask, hose mask, and oxygen breathing apparatus are of value in protecting the men in case of emergency.

In operating at fires where hydrogen sulphide is encountered the first precaution is to provide thorough ventilation of the structure. It is heavier than air, and where ventilation is being provided for the gas only, with no presence of fire, ventilation should be provided at low points in the building. On the other hand, where fire is burning, ordinary ventilation starting at the top of the building first is satisfactory.

Oxygen

Oxygen is a colorless, tasteless gas and when liquified produces a slightly bluish liquid. It constitutes four fifths of the air. It weighs more than air. It is shipped in steel drums, cylinders or "gas bottle." With hydrogen or acetylene it is used for the production of exceedingly hot flames for cutting and welding metals, including platinum. It is also used for resuscitation in asphyxia and stimulation in various diseases. It is occasionally used in combustion to promote better utilization of fuel.

While it is non-explosive, it presents a danger because it intensifies practically all fires. Even steel will burn in the presence of oxygen.

It may be found in establishments where oxy-acetylene welding is done, as well as in laboratories, hospitals, etc. It is non-poisonous and hence constitutes no danger from this angle to men operating at a fire where cylinders of oxygen are present. On the other hand, there is always a possibility of the oxygen cylinders under high pressure bursting due to increased pressure on exposure to heat.

Propane

This is a gas which can be liquified at a temperature of approximately 60° below zero Fahrenheit, and when so condensed forms a colorless liquid. It has an odor like ether. It is about 56 per cent heavier than air, and is used as a fuel for lighting, heating, welding and other purposes. Some of the names under which it is found on the market are Fuelite, Nu-gas, Thermolene and in Pyrofax.

It is shipped in steel cylinders, and when discharged into surrounding atmosphere it presents a hazard similar to gasoline. Its ignition temperature with air is 870 degrees F. (gasoline has an ignition temperature of 536° F.) and it is explosive when mixed with air in the proportions of 2.3 to 7.3 per cent by volume of the mixture.

Sulphur Dioxide

Sulphur dioxide is a non-flamable, suffocating gas. It is, in high intensity, corrosive and poisonous. It is about one and a half times as heavy as air.

It is shipped in iron pressure tanks, and may be found in establishments where artificial refrigeration is carried on. It may also be looked for in concerns engaged in bleaching straw, feathers and silk; and is used as a preservative for beer, wine and meat. It is also employed in the cellulose and paper industries.

As sulphur dioxide is one of the products of combustion of sulphur, this gas does not support combustion and hence serves as a fire extinguishing agent. As an example, when sulphur candles are burned in a furnace, all openings in the flue being closed except the top and the point at which the fumes enter, sulphur dioxide discharged by the burning candles (provided there is sufficient draught up the chimney to carry the gas upward) will usually extinguish the chimney fire. Although heavier than air, as noted above, it is readily drawn upward by the draught created by the fire in the chimney.

Many of the small household refrigerating machines now use sulphur dioxide gas as the refrigerating agent, so that it may be encountered in residential fires as well as in industrial fires.

Practically all fires involving the above, and other compressed gases, the use of water in large quantities is highly beneficial. In the specific cases of ammonia, the water absorbs large quantities of the ammonia from the air; with chlorine, the ammonia forms a hydrate of chlorine from which the gas is released slowly.

But the chief benefit of using water on fires involving gases under high pressure in cylinders is the chilling effect of the water, and the consequent reduction in pressure within the containers. If the temperature of the containers can be kept at normal, or below, the chance of the letting go is negligible. For that reason departments should make every effort to protect exposed tanks with streams of sufficient size to insure cooling of the tanks.

Where poisonous, or corrosive gases are encountered at a fire, and the fire is within the building, thorough ventilation is absolutely necessary in order to protect the men as well as to enable the companies to work at an effective range.

Gases which are heavier than air can best be removed from a building by low ventilation, unless fire is burning and creating draft which tend to draw the gas upward.

Gases lighter than air can best be released from building by high ventilation, that is opening the roof, or upper windows of a building.

But for fires burning vigorously within the building and involving cylinders of gases, ventilation should be performed in the normal manner of opening up top and bottom of building and as many windows on the various floors as is deemed necessary.

Officers in charge of companies must be on the alert for explosion incidental to the addition of gases which are released by bursting cylinders, or cylinders on which the safety seal lets go.

Many gases are highly inflammable and create tremendous blasts when ignited in the presence of air. Others such as oxygen, increase the intensity of the fire by providing the necessary oxygen for quick and complete combustion.

To sum up prompt and thorough ventilation, use of water streams, and safeguarding men against exposure to gases are absolutely necessary in handling fires in establishments wherein gases in cylinders are encountered in large numbers.

George Sinclair Chief of Toronto

Following the resignation on August 1 of Chief William Russell, the promotion has been announced of Deputy Chief George Sinclair to head of the fire department of Toronto, Canada.

Chief Sinclair joined the department on April 26, 1895 and was stationed at Yorkville avenue house. He was promoted to lieutenant in 1906, to captain in 1910 and to district chief in 1914. In 1919 he was advanced to deputy chief.

Following his recent promotion to head of the department, Chief Sinclair appointed Assistant Deputy Chief Duncan McLean to the position of Assistant Chief of the Department and he installed a day and a night platoon chief.

JOHN CARL LEE.

Chief George Sinclair

Children Die in Film Fire

An amateur motion picture show operated by two boys in Sao Paulo resulted in the death of five children and in serious burns to twenty-two others. Fifty children had paid an admission charge of two pennies and had crowded into the basement of a house where the two boys had set up a small projection machine and a screen. The place had only one exit and when the fire started in a pile of film, most of them were unable to escape.

Ladder Truck Delivered to Chilton, Wis.—A ladder truck has been delivered to Chilton, Wis.

Lynn Buys Buffalo Apparatus—The city of Lynn, Mass., has just awarded a contract to the Buffalo Fire Appliance Corp. at Buffalo, N. Y., for two 1,000 gallon triple combination pumpers.

Campaign Starts for Firemen's 8-Hour Day—New York City aldermen are planning an intense campaign to win adoption of the 8-hour day for the New York Fire Department. The Uniformed Firemen's Association has promised to help all that it can by winning support for the measure.

The Round Table

(Continued from page 694)

of the building. After the hose is on the roof it is fastened to the base of the chimney to keep it firm.

We have a squad wagon equipped with 1½-inch hose that responds to all alarms of fire. The 1½-inch hose lines are used up through buildings, as they are so much lighter to carry and can be handled much easier than 2½-inch lines, especially on lath and plaster partitions, etc.

G. M. Houren, Chief, Winnetka, Ill.: Hose straps are used for carrying hose up ladders, or ropes are tied to the hose to hoist it to the point desired. Shepherd hooks are used to carry the hose up fire escapes. In getting hose lines to the roof, we use either a rope with a running bow line on the hose, or a Shepherd hook.

Thos. D. Blake, Chief, Rockford, Ill.: In raising hose to various floors and positions in a building, the line of hose is taken up the stairway inside of the building to the seat of the fire, or, if taken up the outside of a building, hose rollers, hose wall hooks and hose spanners are used. The hose is connected to the standpipe built in the building, or alongside of the fire escape on the building.

We usually have one line of hose sent up on the outside of the building and one line assigned to the inside of the building where the fire is burning at a high point.

H. L. Taylor, Chief, Rome, Ga.: In raising hose lines to the various floors we carry them up ladders, fire escapes and stairways. If the fire is beyond the third floor and above our ladders, we send men up to the roof to let down a rope to which the hose is attached. The line is then hoisted up by means of a hose hoist on the window or edge of the roof. Sometimes elevators are used to carry hose lines to various floors.

Peter Beckerle, Chief, Danbury, Conn.: I have not yet found any better way to hoist hose above the second story than by using hose hoists on a ladder or on the window sills and cornices. To do this quickly and easily, it should be done before the line is charged with water. When elevators are in service, rolled hose should be taken up by the men to lengthen the lines if necessary.

M. S. Philips, Chief, Chicago Heights, Ill.: We have no high buildings and are seldom called upon to make use of the "dough-nut" method. We use hand lines, which are carried up ladders or stairways, depending on the conditions encountered at the fire.

Olander Lind, Chief, Kansas City, Kans.: We use Shepherd hook for raising hose to various floors and positions. However, if this method is not employed the line is raised by attaching a rope to it and having men hoist it to the point desired.

In answer to your second question regarding raising hose to high points, we use the "dough-nut" roll and the above method.

C. L. Ingram, Chief, Montgomery, Ala.: We use hose rollers or hose hoist with ropes for raising lines to various points or floors in buildings. When hose is to be raised to high points, aerial trucks are employed at all times, and a hose roller is used, if possible.

J. J. Carlisle, Chief, Brawley, Calif.: Due to the fact that we are located in an earthquake area our buildings do not run over four stories in height. To get lines up to this height we run the first line with a rope attached to it, up the ladder. The rope is sent up with the first line to enable a second line to be hoisted up if necessary. Fire escapes are also used to raise hose above the second floor or to the roof.

Calvin C. Bouce, Chief, Joliet, Ill.: We use the bundle method or roof hoist to raise hose lines to various floors or points in a building. For getting lines to the roof of a building, the Shepherd hook is employed.

William Briggs, Chief, Shelbyville, Ind.: We use the "dough-nut" method for raising hose to various places in a building. If it is necessary for a line to be hoisted to the roof, ropes are used for this purpose.

Answers to Previous Questions

John J. Towey, Chief, Newark, N. J.: As the fire department comes under the head of the Department of Public Safety, which includes the Police and Building Departments, all three departments work in conjunction with each other.

When any hazard or unoccupied building is reported it is referred to the Chief Inspector of Combustibles and Fire Risks and the Building Department, who in conjunction serve notices upon the owner, or agent, to remedy such hazards or demolish such buildings, and if deemed necessary, photographs of such buildings are taken.

All violations are referred to the Chief Inspector or Combustibles and Fire Risks, who conducts an investigation, and if not remedied in a proper manner, such cases that do not obey notices are turned over to the proper department, such as the police, building or law departments for action.

With reference to suspicious or incendiary fires, the officer having charge of such fire notifies the police department, also the Chief Inspector of Combustibles and Fire Risks. Then he leaves two firemen to guard the building, with warning "not to let any person or persons enter the building to molest the evidence in any way and not to leave the said building or plant until relieved by members of the Bureau of Combustibles and Fire Risks or members of the police department, who take photographs of all evidence and gather such information as can be used at the trial of the person or persons who are being sued for setting an incendiary fire.

Our object is to try our best to have an indictment found against the guilty person and to secure a conviction in every case where there is any suspicion of incendiarism.

All photographs are taken by members of the police department who are assigned to that kind of work.

It is my personal opinion that without photographic evidence the case would not prove so emphatic when the person is brought to trial. For that reason it would be harder to secure a conviction. When photographs are available, the evidence is conclusive. We have had eight convictions out of every ten cases tried.

R. J. Scott, Chief, Los Angeles, Calif.: We have a bureau of photography in this department which was established some five years ago because of an evident need. We have two men regularly assigned to this work, uniformed members of the department who were advanced amateurs in the photographic line. The bureau is well furnished with cameras, lenses and dark room facilities.

It costs considerable to maintain such a branch in this department, principally due to salary expense. We have considered having our photographic work done by commercial houses but there are objections which make this impracticable. We have, in the first place, been unable to find any such establishment which can guarantee us 24-hour service, and the lack of such service would seriously impair the value of photography which we are continually using in connection with the work of the arson investigation bureau. Our photographers, one or the other, is on call at all hours, day and night, and in fact are called out several times during each month to take photographs at the scene of suspicious or evidentally incendiary fires. Secondly, our men do very good work technically, which is important in a picture presented in court as evidence. Very careful work is necessary in order to show, for instance, such things as kerosene stains upon floors and walls. Ordinary commercial work would not do at all. In the third place, the taking of photographs for evidence purposes usually entails appearances in court by photographer who must testify as to his photographs, and

Fire School Students Guests of Elmira Fire Department

As a final feature of the zone school sponsored by the New York Mayors and Fire Chiefs, students who attended the Binghamton Zone School, together with Assistant Chief Thomas and other officers of the department, were guests of the Elmira, N. Y., fire department. A trip was made through the American-LaFrance factory and a demonstration arranged of foam extinguishing equipment. In the morning, Mr. White, chief chemist of the plant, delivered a lecture on "Chemistry of Fire." The group was photographed on the Elmira City Hall steps. The men in uniform are Captain Louis Mosher, instructor, and Chief John H. Espey of the Elmira Fire Department.

appearances in court require a great deal of time. We believe therefore that we could save little if anything by trying to have our work done commercially, and that we would not get the desired results.

Our photographic department does a great deal of work for the fire college in the taking of special pictures and making of lantern slides, and some work for this office when we are requested to furnish pictures.

Having the photographers under departmental discipline I consider an advantage, as the service is dependable. We have no intention of making any changes in our system, and I believe it would work out satisfactorily for any department large enough to justify the attendant expense.

W. J. Creegan, Chief, Rochester, N. Y.: Our photographs are taken by the police department, Bureau of Identification, which also numbers amongst its personnel a young man able to draw diagrams to scale, where necessary.

Our experience proves such work to be invaluable. Where legal action is involved, such photographs are virtually necessary. In any event, if any action at all is taken, the possession of such competent evidence cannot help but strengthen the case for the department authorities. Too, we have frequently availed ourselves of the services of our city chemist. From both of the above sources we have always received the heartiest cooperation and without their assistance we would be tremendously handicapped.

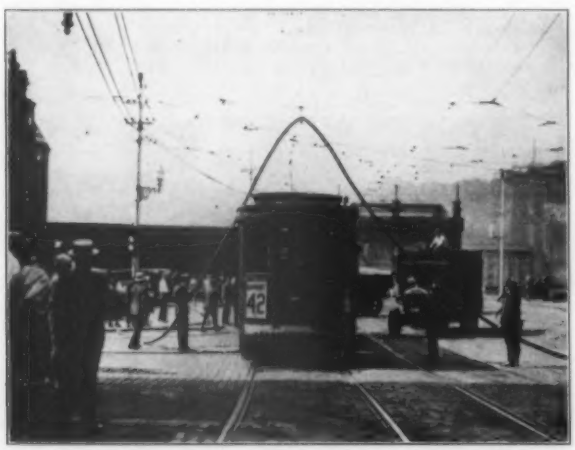
John C. Stahlhut, Chief, Ft. Wayne, Ind.: Our department has followed the practice of taking photographs for several years. The man taking our pictures is a veteran fire fan and newspaper photographer. At the present time he is a special assistant of the state fire marshal. I believe pictures are very good in helping to eliminate faulty construction, and also to determine the cause of fires which are of a questionable origin.

John J. Schwartz, Chief, Kenosha, Wis: This department has not been really in need of pictures up to the present time. However, for the past few years we have had several pictures taken which were of considerable help in arriving at a solution to the problem in question. The pictures are in our files and will probably aid us in future work.

As to who took the pictures, these were taken by a commercial photographer. Due to the fact that our department is not quite large enough to maintain a photographic department, we are compelled to resort to commercial photographers for our pictures.

I believe that pictures taken before and after fires serve in reducing the number of arson fires, more than anything else. They are also of value in connection with fire prevention work where it is desired to bring hazards before the eye of the public. Pictures showing actual conditions existing will help in getting people to "clean up" their property.

R. A. Kelley, Chief, Davenport, Iowa: Our photographs are taken by a photographer on one of our leading papers.



A New Way to Stretch Hose Over a Busy Street

Pittsburgh, Pa., has found a new way to stretch hose across trolley tracks so as not to interfere with the movement of the cars. The lines are swung over the wires as indicated in the photograph.

Too much emphasis cannot be placed upon the value of pictures in connection with the work of fire department. While we do not maintain a file of the photos taken at present, we are hoping to do so in the near future.

The particular photographer who supplies us with our pictures is always willing to cooperate. He takes photographs of hazards, violations or suspicious fires, In that way we secure information that it very valuable to us. I am, however, endeavoring to have a man in the department assigned to taking photographs and keeping them on file for future reference.

E. F. Coop, Chief, Pasadena, Calif.: We take photographs of hazards, violations, suspicious fires, etc. These photographs are taken by a member of the department assigned to that work; 3¼ x 4½ inch Graflex cameras are used. We find this branch secures excellent results. When people see the camera set-up and are told that pictures are to be taken of the hazardous conditions around their property, they see to it that the violations are remedied. They are informed of the fact that if corrections are not made the pictures will be used as evidence against them. We have also taken photos of suspected incendiary fires which were valuable for reference. Photographs of every member of the department, and also special department activities, are kept on file.

Frank B. Rainby, Chief, Dayton, Ohio: When the occasion demands, photographs are taken of hazards and suspicious fires. During fire prevention week pictures are taken by newspaper photographers of our inspectors in the performance of their work. Photographs of suspicious fires are taken by the police department. The results secured are invaluable and I believe such work should be encouraged.

Frank Charlesworth, Chief, Providence, R. I.: In my opinion photographs of hazards, violations, suspicious fires, etc., are not only valuable in connection with cases where controversies may arise and require court action, but also as a matter of safety for those engaged in fighting fires. At the present time no photographs are taken here. Personally, I believe the installation of such would prove invaluable to the department.

C. M. Johnson, Chief, Knoxville, Tenn.: We have photographs of dilapidated buildings considered fire hazards. The pictures are taken by our fire prevention inspector.

These photos are used as evidence when necessary, in the event that the owner of the property attempts to prevent being forced to repair or raze such buildings. Needless to say photographs of this kind have been of great assistance in having fire hazards corrected.

C. E. Carlson, Chief, Tacoma, Wash.: We sometimes have pictures taken of suspicious fires or where bad fire hazards are apparent. Such photographs are taken by the police department upon request of the fire department, as we have no one assigned to this work. This work is of a great deal of value in proving points in court where arson cases are being tried. Pictures showing bad hazards would help in having the violator correct the condition if they were printed in the newspaper. However, we do not like to do this.

A. G. Schlamp, Comr. of Bldgs., Evansville, Ind.: Snapshot photographs are taken by members of the Building Commissioner's department. Since this work was instituted, approximately thirty pictures of dilapidated buildings have been taken. At least twenty of these buildings have been razed. We are at present carrying on quite a campaign against such buildings and expect to have a good report compiled in this respect by January 1, 1931.

Pictures help the department to bring before other departments conditions which are prevailing, thereby securing their support. Also, landlords are sometimes surprised by seeing photographs of actual conditions existing on their property.

John F. Sullivan, Chief, Fall River, Mass.: Photographs are taken by the Arson Squad. We consider this a very important part of our work. At the present time pictures are playing an important part in the trial of an arson case.

Edw. Grenfell, Chief, Portland, Ore.: We have always used photographs as evidence in court cases and as material for use in connection with our educational programs. All pictures are taken by a member of our department. We have, upon many occasions, proven our point in connection with arson cases by the use of photos.

(*Continued on page* 714)

BRAXMAR BADGES

Standard for Fifty Years

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14K Gold, $25.00

Rolled Gold, $5.00

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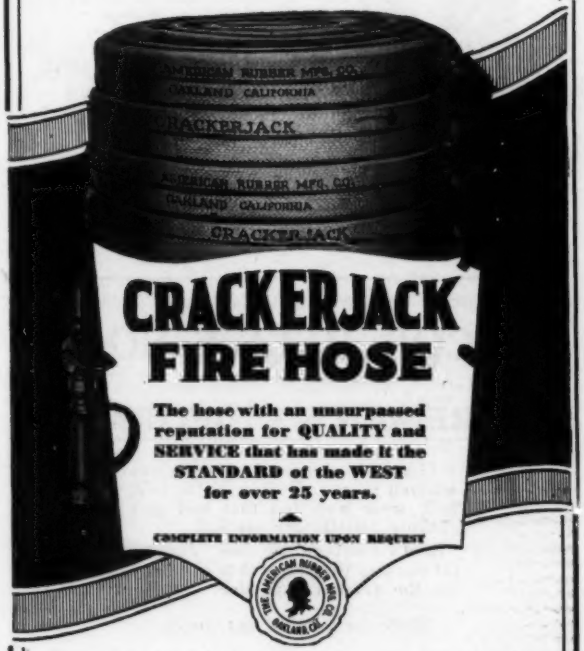
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CRACKERJACK FIRE HOSE
The hose with an unsurpassed reputation for QUALITY and SERVICE that has made it the STANDARD of the WEST for over 25 years.
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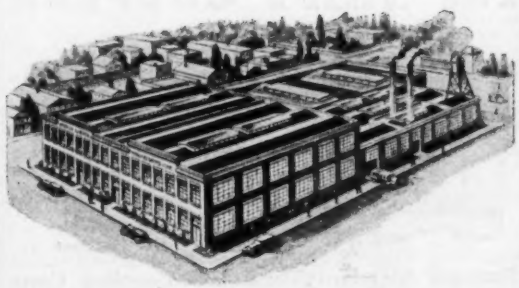

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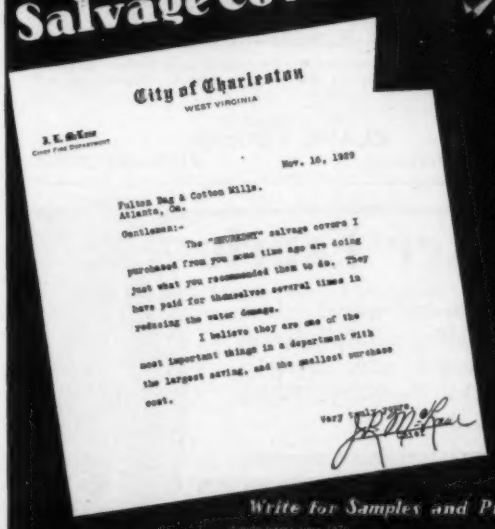

City of Charleston
WEST VIRGINIA

Nov. 16, 1929

Fulton Bag & Cotton Mills.
Atlanta, Ga.

Gentlemen:-

The "SHUREDRY" salvage covers I purchased from you some time ago are doing just what you recommended them to do. They have paid for themselves several times in reducing the water damage.

I believe they are one of the most important things in a department with the largest saving, and the smallest purchase cost.

Very truly yours,

Write for Samples and Prices

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Do Not Use Your Pumpers

TO DRAUGHT DIRTY WATER FROM BASEMENTS, ETC.

LET US SEND YOU ONE OF THESE SIPHONS

30 Day Free Trial
Write for circular.
Over 450 in Service

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Write for Chiefs' Testimonials On

The Smith **INDIAN** Fire Pump

WE'LL gladly send you copies of letters from chiefs who strongly recommend this portable, 5 gal. extinguisher. Excellent for fighting grass, brush, awning and roof fires. Uses only clear water. Carrying rack clamps right on truck.

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FIREMEN'S UNIFORMS

Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.

Reed's Uniforms are most economical because they represent full value for the amount expended.

Write for catalog and prices.

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You are interested in Fire Fighting Equipment consult:

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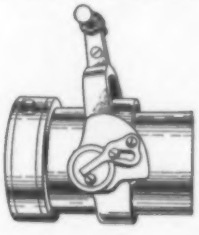
Builders of equipment to meet your requirements.
Specializing in Apparatus for Rural Fire Fighting.

BOYER FIRE APPARATUS COMPANY
Logansport, Indiana

The SHIFT COUPLER



Built to CONNECT and DISCONNECT instantly!

Any size hard suction

Years of Service
Prove it the Best

National Standard Threadless Coupling Corp.
215-217 Beach 122nd St., Rockaway Park, N. Y.
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COOPER ELECTRO-PNEUMATIC ALARM

In use for Years

Unlimited life

Nothing to get out of order

Powerful—Reliable—Instantaneous

Operates on only 1/10 amount of air required by whistles. Quickest device for coding. May be connected to present system and will operate if power is temporarily off. Produces a powerful and distinct sound audible for miles.

Manufactured by
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BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
Canal St. Station
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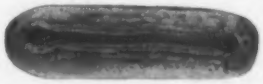

It is the only fire hose that never bursts at fires because pin-holes are responsible for sections bursting after it has been in service a few years.

Bi-Lateral hose can never have pin-holes. We guarantee it six years and furnish the Durobuilt improvement and rocker lug coupling without additional cost.

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A jacket weave which provides multiple jacket strength with single jacket flexibility. Write for details.

MANUFACTURED EXCLUSIVELY BY
HEWITT - GUTTA PERCHA
RUBBER CORPORATION
BUFFALO, N. Y.
(Also makers of single and double jacket hose)
"Territories Available"

PROPOSED IMPROVEMENTS

Lawton, Okla.—City Council purchased site for proposed fire station. T. Sanders, City Clerk.

Springdale, Penn.—Volunteer fire department raising funds for purchase of new motorized apparatus, according to reports.

Issaquah, Wash.—New apparatus may be purchased for fire department, according to reports.

East Palestine, Ohio—City Council passed an ordinance issuing bonds to the amount of $13,000 for purchase of additional equipment for fire department. J. R. Hays, Chief.

Costa Mesa, Cal.—Petition requesting formation of a county fire protection district has been filed with county supervisor.

Bath, Me.—A petition has been filed by the Bath Hose Co., No. 1 for purchase of new fire apparatus, according to reports.

Lewiston, Mont.—Board of Fire Underwriters of the Pacific recommended the installation of a fire alarm system. A. Baker, Chief of Fire Dept.

Harrison, N. Y.—West Harrison Independent Fire Co., raising funds for purchase of new equipment, according to reports.

Deadwood, S. Dak.—New equipment is to be purchased for the fire department, according to reports.

Position Wanted

Delivery Engineer, thoroughly experienced and reliable, expert demonstrator, good mechanic, can handle sales also. Desires position with progressive manufacturer. Address: Box 285, c/o Fire Engineering, 24 West 40th St., New York City.

8-6, 20-9, 3

Wanted

Ex-Fire Chiefs in Central and Middle Atlantic states. If you can sell fire prevention and safety inspection service on a commission basis, write to Roscoe L. Smith, Ambler, Pa.

7-23. 8-20.

Gamewell Adds to Sales Staff

Two additional sales engineers have been added to the force of the Gamewell Company.

W. B. Barber will be located at the New York office of the company and will handle the sales work in part of New York and Pennsylvania.

Previous to his present connection, he was engaged in municipal signaling in Pennsylvania. He has also had

E. E. Brown

W. B. Barber

experience in the brass and iron foundry business and was connected with the Harrisburg Pipe Bending Company. He is a graduate of Pennsylvania State College.

E. E. Brown, who is now at the Boston office, will cover the metropolitan area about Boston. For several years prior to his present work he was with the New England Telephone & Telegraph Company. He received an electrical ngineering degree from Tufts College.

N. Brownwood, Tex., to Erect Fire House—The council of North Brownwood, Tex., decided to erect a new fire station.

Yonkers, N. Y., House to Have Sport Roof—Incorporated in the plans for the combined fire and police station for Yonkers, N. Y., is a recreation roof for the men. The station will cost $225,000 and it will be erected on a plot one hundred feet square.

Humboldt County Chiefs Organize—Allan D. Pettingill of Eureka, Cal., was elected president of the newly formed Humboldt County Fire Chiefs Club. Chief James A. Wyatt of Arcata was elected secretary-treasurer. All chiefs, ex-chiefs and active assistant chiefs in Humboldt County, Cal., are invited to join.

Plans Pushed for Oakland Convention—Plans are progressing for the coming convention of the Pacific Coast Fire Chiefs' Association convention to be held in Oakland, Cal., September 1-5. It is believed that the exhibits will surpass those of any previous gathering. Talking pictures of fire-fighting methods will be exhibited.

CONVENTION DATES

Aug. 19-22—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. 58th Annual Convention, Nyack, N. Y. Secretary, Fred A. Davis, Drawer X, Fort Edward, N. Y.

Aug. 25-27—ARKANSAS STATE FIREMEN'S ASSOCIATION. 9th Annual Convention, McGhee, Ark., Secretary, H. D. Compton, Central Fire Station, Little Rock, Ark.

Aug. 27-29—VIRGINIA STATE FIREMEN'S ASSOCIATION. 44th Annual Convention, Phoebus, Va. Secretary, E. K. Landis, Pulaski, Va.

Sept. 1-4—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 37th Annual Convention, Oakland, Cal. Secretary, Jay W. Stevens, 1014 Merchants' Exchange Building, San Francisco, Cal.

Sept. 2-4—KENTUCKY FIREMEN'S ASSOCIATION. 11th Annual Convention, Paducah, Ky. Secretary, Capt. S. G. Render, 940 Starks Bldg., Louisville, Ky.

Sept. 2-5—DOMINION ASSOCIATION OF FIRE CHIEFS. 22nd Annual Convention, Port Arthur, Ont. Secretary, Chief James Armstrong, Kingston, Ontario, Can. Exhibit Space, Chief A. S. Kapelle, Stratford, Ont.

Sept. 9-11—ILLINOIS FIREMEN'S ASSOCIATION. 43rd Annual Convention, Peoria, Ill. Secretary, Assistant Chief Roy W. Alsip, Fire Department, Champaign, Ill. Exhibits, Chief Albert Herring, Fire Department, Murphysboro, Ill.

Sept. 9-12—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 58th Annual Convention, Hotel Royal Alexandra, Winnipeg, Man., Canada. Recording Secretary, Chief James J. Mulcahy, Yonkers, N. Y.; Executive Secretary, Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee. Chief Charles Alt, Fire Headquarters, St. Louis, Mo. Hotel Reservations, Chief D. A. Boulden, Winnipeg, Man.

Sept. 16-17—IOWA FIREMEN'S ASSOCIATION. 53rd Annual Convention, Boone, Ia. Secretary, Paul Soener, Independence, Ia.

Sept. 16-18—MASSACHUSETTS STATE FIREMEN'S ASSOCIATION. 51st Annual Convention, Pittsfield, Mass. Secretary, Daniel J. Looney, Room 1043, Old South Bldg., Boston, Mass.

Sept. 19-20—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 53rd Annual Convention, Auditorium, Atlantic City, N. J. Secretary, William Exall, Chamber of Commerce Bldg., Newark, N. J.

Sept. 23-25—NATIONAL ASSOCIATION OF POLICE AND FIRE SURGEONS and Medical Directors of Civil Service Commissions. 9th Annual Convention, New York City, President, Dr. Harry M. Archer, Honorary Medical Officer, N. Y. F. D.; Secretary, Dr. Arthur Wildman, New York Municipal Civil Service Commission, New York City.

Sept. 24-25—MISSOURI STATE FIREMEN'S ASSOCIATION. Annual Convention, Trenton, Mo. Secretary-Treasurer, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis.

Sept. 29-30—TEMISKAMING FIREMEN'S ASSOCIATION. Seventh annual convention, New Liskeard, Ont., Canada. F. E. Thompson, Secretary-Treasurer, New Liskeard, Ont.

Oct. 7-9—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 51st Annual Convention, Hotel Americus, Allentown, Pa. Secretary, Charles E. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 8-9—WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. 2nd Annual Convention, Sheboygan, Wis. Secretary, Chief Arthur J. Rahn, Fire Department, Two Rivers, Mich.

Oct. 15—FIRE CHIEFS' EMERGENCY PLAN OF WESTCHESTER COUNTY. Regular meeting, and Mayors' Night. Fire Headquarters, Mt. Kisco, N. Y. Secretary-Treasurer, E. Riviere, Fire Headquarters, Larchmont, N. Y.

Oct. 21-23—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. 49th Annual Convention (2d in year), Scottsbluff, Neb. Secretary-Treasurer, H. A. Webbert, Kearney, Neb.

Oct. 21-23—RAILWAY FIRE PROTECTION ASSOCIATION. 17th Annual Convention, St. Louis, Mo., Secretary-Treasurer, R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

November—SONOMA COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Petaluma, Cal.

May 11-16, 1931—NATIONAL FIRE PROTECTION ASSOCIATION. 35th Annual Meeting, Toronto, Ont., Can. Managing Director, Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

Charlotte Has Fire Prevention Bureau

A fire prevention bureau with an officer devoting his full time to the work, was started by the Charlotte Fire Department.

Captain H. C. Kissiah is in charge of the inspection work. Detailed with Captain Kissiah will be firemen from each of the city's six stations, who will assist in making the inspections. These will be detailed to located explosives, illegally stored, combustion materials, rubbish, improper electric wiring and other fire hazards.

The city will be divided in districts, with the fire stations as the central locations. Firemen from each station will make the inspection in the surrounding territory in order that they will be familiar with the buildings in the territory served by the station. At a fire, such information would be of inestimable value, it is believed. Large maps have been prepared showing the location of all buildings in the city and the types of structures. These will be studied carefully by the firemen and at the conclusion of the first inspection periods, examinations will be conducted at each of the stations.

D. G. SPENCER, JR.

Appropriation Made to Protect Forests—A fund of $147,715 has been appropriated to protect the California forests against fire. This is greater than the amount appropriated the year previous.

FALSE ALARMS

MORE PRACTICE

At the annual fire department ball, it was the duty of the members to see that every girl present had at least one dance. It was necessary to show some appreciation for the financial support. So Joe found his arms around one whom the other fellows had passed by. After two encores she turned to Joe and said:

"I could go on dancing like this with you forever."

"Oh, no, you couldn't. You're bound to improve in time."

A Scotchman intending to put in a long distance call, tried to make arrangements for Floyd Gibbons to do the talking for him.

ALL CREDIT

The Ladies Auxiliary was discussing some of the boys in a most analytical way.

"You girls can say all you want about Tom, but I'll give him credit for one thing: he gave Susie a beautiful engagement ring," said one member.

To which replied one of the gang who had loved and lost:

"Yes, the jeweler told me that he gave Tom credit for that, too."

It is pointed out that many racehorses are given peculiar names, especially if they don't finish in the first three.

LIGHT A LUCKY

Once in a while some man gets into the department who has a habit of over-indulging. Pat O'Brien was one. He had been reprimanded several times and finally was ordered to appear before the commissioner.

His honor looked over the record sheet and said to the victim:

"Sir! You are charged with habitual drunkenness. What excuse have you to offer?"

"None, Commissioner, other than a habitual thirst."

FIREPROOF

At a large plant where there were plenty of "No Smoking" signs, an inspector noticed a man smoking and reported the fact to the plant manager. Back rushed the manager and after giving the offender a terse lecture, he asked what his wages were.

"Thirty dollars a week," answered the cluprit.

"Here's a week's wages," said the manager. "Now get out."

An hour or two later the manager returned to find the man still there.

"What are you doing here?" he asked. "Didn't I fire you a short time ago?"

"I'm sorry, sir," said the man, "but I work for the railroad company."

And the only place for a back seat driver is on a hook and ladder.

AN UNFORTUNATE

Mothers were discussing the merits and failings of their grown-up sons, as mothers will often do.

"My poor Jimmie, he's the one with the fire department, is so unfortunate."

"How is that?" asked one of the group.

"He came home and said that during the field day sports, he broke one of the best records of the department."

There was a time long ago when people thought that the earth was flat. Columbus demonstrated that it was round, and now a whole lot of people are doing their best to prove that it is crooked.

HE NEEDED ONE

Funny, isn't it, how salesmen know when the other fellow's pay day arrives. Shortly after the big event came, a dapper dressed fellow walked in the station.

"I'm a bond salesman," he announced.

The wit of the company replied, "Here's a quarter. Go buy yourself a meal."

Are you a Socialist or is your father rich?

MEANT BUSINESS

The boys had their troubles with the new fire station even though it had appointments not found in other houses. For example, to open the main door, it was necessary to lift the door slightly. And what could be more appropriate to make this work easier than an axe from the ladder truck.

One day an ambitious peddler called, and when he knocked he disturbed the boys at a game of—well your guess is as good as mine.

"Who's there?" asked one of the party.

"It's me," answered the house-to-house visitor.

"Hey, Mike it's your turn," came a reply from within. "Get the axe."

But the visitor had fled.

During the dry spell the forest rangers are trying to get campers to carry cigarette lighters instead of matches.

MEANS THE SAME

When the newspaper reporter called for possible fire stories, he found the desk man studying his bank book.

"Oh, so you were one of the many fooling with the stock market."

"Not me. I was serious—the market did the fooling."

Then there was the Scotchman who took out fire insurance on his cigars.

FOOLED

A motorist tried to pull up to the one empty space at the curb. He said to one of the city's sidewalk loafers:

"Would you mind getting out of that gutter? I'd like to park my car."

"I fooled you that time," came the quick response. "I'm leaning against a fire hydrant."

Drawing by "Art" Espey

It Is Getting to Be Quite a Problem to Outfit a Department

My, oh my, how styles do change! Even the most aggressive fire department official often finds himself two steps behind in the field of "what the well dressed man will wear." Now that shorts have replaced pajamas, the modern inspector has troubles in selecting the ideal summer uniform for the up-to-date fire-fighters. Incidentally, a fan, an ice cream cone and usually a tube of Ungentine for delicate skins, are desirable requisites.

Who Cares about Saving the Tax Payers' Money?

THE officials who purchase Mathews Modernized Hydrants prove that they are careful of expenditures, because it costs the Maintenance Department much less to repair and replace Mathews Hydrants.

MATHEWS MODERNIZED HYDRANT

When Broken is Easily Replaced Without Digging

Think of the labor costs and repairing costs this saves with so many hydrants smashed by traffic accidents. The completely revolving head makes it easy to face nozzles in any direction.

Interchangeable with old installations.

Investigate. Complete details upon request.

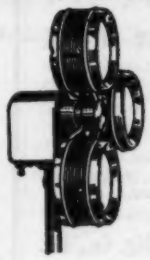
R. D. WOOD & CO.

In business continuously since 1803

400 Chestnut St., Philadelphia, Pa.

ENGINEERS :-: IRON FOUNDERS :-: MACHINISTS

The most Effective Combination of Warning Signals



BUCKEYE "ROTO-RAYS"—A silent signal of unquestioned effectiveness to protect your apparatus and your firemen against accidents.

At night these three revolving red signal lights make identification of the apparatus instantly possible as far as light is visible.

Insist upon having "Roto-Rays" on the next piece of apparatus you buy. It's just as essential as the whistle, the siren or the bell. Easily installed on apparatus now in service.

The Powerful BUCKEYE EXHAUST WHISTLE predominates in over 600 fire departments where serious traffic problems exist.

The shrill blast of a Buckeye Whistle effectively carries far ahead of the apparatus. Its sound is distinctive and extremely penetrating.

"Roto-Rays" and a Buckeye Whistle form the most effective combination of Warning Signals in existence.

Prices and full particulars upon request.

Buckeye Iron & Brass Works
326 E. Third St. Dayton, Ohio

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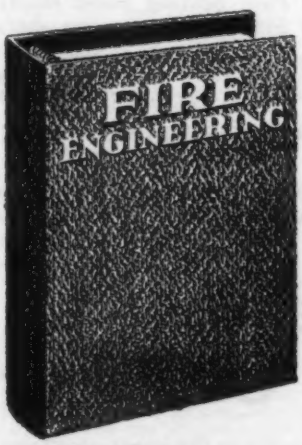
WARNING SIGNALS THAT WARN

A Handy Binder

for your copies of

FIRE ENGINEERING



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Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment

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FIRE DEPARTMENT ACTIVITIES

W. Jefferson, O., to Buy Apparatus—Soon after fire destroyed a grain elevator in West Jefferson, Ohio, the council met in emergency session and voted to buy fire apparatus.

Wappingers Falls to Erect Fire House—Contracts have been awarded for the construction of a new fire house in Wappingers Falls, N. Y.

Oklahoma City to Buy Another Pumper—Chief George B. B. Goff conferred with the City Manager of Oklahoma City, Okla., in reference to the purchase of another pumper.

E. Rutherford, N. J., to Buy Pumper—The borough of East Rutherford, N. J., voted to buy another pumper. It will be an Ahrens-Fox, to cost about $13,500.

Fire Alarm Completed in Jacksonville, Fla.—The new central fire alarm station of Jacksonville, Fla., has been completed.

Saugus, Mass., Buys Ladder Truck—Saugus, Mass., voted to buy a ladder truck from the McCann Company, Portland, Me.

Apparatus Delivered to Hamburg, Pa.—A Hahn ladder truck has been delivered to Hamburg, Pa., for the East End section.

Joliff, Chief of Springfield, Ore.—Hugh Joliff has been appointed Chief of the Springfield, Ore., Fire Department. The appointment is temporary.

San Antonio, Texas, to Sell Fire Houses—San Antonio, Tex., will sell two new fire stations recently erected in the Harlandale and Terrell Hill sections.

Apparatus Housed in North Wales, Pa.—Two new pumpers purchased for $25,000 were housed in North Wales, Pa. Many neighboring companies participated in the ceremonies.

Mt. Pleasant, S. C., Buys Apparatus—Mt. Pleasant, S. C., has purchased a triple combination pumper mounted on a Ford chassis.

Waverly, Ia., May Purchase Apparatus—A survey is being made of rural sections, adjacent to Waverly, Ia., to determine the need for additional fire apparatus.

Port Townsend Bans Outside Runs—The council of Port Townsend Wash., voted that the fire apparatus is not to answer out of city calls, except in cases of extreme necessity.

LaFayette, Ill., Farmers Buy Apparatus—Farmers and residents of LaFayette, Ill., have purchased fire apparatus for rural protection.

Fall River, Mass., Offered Station Sites—Five sites have been offered the city manager of Fall River, Mass., for the contemplated central fire station. The matter will be presented to the Council for further consideration.

Two Companies for Mt. Sterling, Ky.—A city ordinance has defined the Mt. Sterling, Ky., Department as consisting of two companies of six men each. The department will have a Chief, three paid and eight volunteer firemen.

Silver Plates Stolen from Apparatus—Two silver plates on which are engraved the names of the fire committee when the apparatus was purchased, was stolen from the Hinsdale, Mass., apparatus.

Free Transportation to Convention—Arrangements have been made with the Alpine-Yonkers Ferry to carry free, apparatus traveling to and from the New York State Volunteer Firemen's convention to be held in Nyack, August 18-23.

Ellwood City May Have New Fire Alarm—Ellwood City, Pa., is considering the installation of a new fire alarm system. At present the community depends entirely upon the telephone.

Spokane, Wash., Rejects Station Bids—Due to a misunderstanding on the part of bidders, Spokane, Wash., has rejected bids for the construction of a new fire station to cost $12,000.

Clifton, N. J., to Erect Fire House—An ordinance has been presented for the erection of a new fire house in Clifton, N. J. It provides for a $60,000 appropriation to finance the construction.

Hazleton, Pa., Has Two New Apparatuses—The city of Hazleton, Pa., recently put into service two new Hahn pieces of fire apparatus. One of these is a 500-gal. pumper and the other a city service truck.

Hollywood, Cal., to Erect Headquarters—The city council of Hollywood, Cal., voted to erect a fire headquarters. The fire department borrowed $26,627 from the city's reserve fund for this improvement.

Hagerstown Company Receives Apparatus—A dinner was arranged by the Pioneer Hook and Ladder Company, Hagerstown, Md., to mark the arrival of the new Ahrens-Fox apparatus.

Mason City, Ia., Discusses Fire Prevention—Plans were made in Mason City, Ia., for a fire prevention campaign by means of cards to be placed on doorsteps. The cards will be prepared by Chief Dan Shire and will be distributed by the Boy Scouts.

Alhambra, Cal., Looking for Station Site—Alhambra, Cal., is having considerable difficulty in finding a site for its contemplated fire station in the southwestern part of the city. Although the residents of that section want a new fire station, no one wants to sell the necessary land to the city.

Steel Fireboat for Portland, Me.—Portland, Me., is considering a steel hull fireboat to cost about $130,000. The contemplated boat is designed for a speed of eighteen knots an hour and the pumps will have a capacity of 6,000 gallons of water a minute.

Firemen Falls from Apparatus on Way to Fire—A member of the Denver Fire Department went to the hospital as the result of a fall from the apparatus while on the way to answer a fire alarm. He attempted to alight near a hydrant while the apparatus was moving.

Work Started on College Point Station—Construction has started on a new fire station in the College Point section of New York City. The building is designed to house two companies, and officials expect that it will be completed early in October.

Four Injured by False Alarm Run—Just because some woman in the downtown section of Denver, Col., mistook the fire alarm box for a mail box, four persons, including a district fire chief, were injured. The chief and his driver crashed into another car on the way to answer the call.

Many Applications Received for Tucson Jobs—More than eighty applications have been received by Tucson, Ariz., for six vacancies in the fire department. Additional men are needed to man a new fire station but no appointments will be made until the fire house is completed and the new equipment arrives.

Paducah, Ky., to Entertain Firemen—Arrangements are well under way for the annual state convention of the Kentucky Firemen's Association to be held in Paducah, September 2-4. Chief J. M. Slaughter is President of the association and the official convention host. The parade will be held on Wednesday night.

Chief Mourns Passing for Fire Horses—According to Chief Pat Hannon, of Creston, Ia., the romance of the fire service passed out with the fire horses. He said that the horses kept up interest in the department and that all youngsters in the neighborhood would be on hand to watch the daily horse drill. A real affection existed between the horses and men.

Fund Asked for New Rochelle Fire Alarm—The City Council of New Rochelle, N. Y., has been requested to appropriate $82,000 for fire alarm improvements. All overhead cables are to be placed under ground, new boxes will be installed in all the schools, and a number of obsolete boxes are to be replaced. It is believed that the new system will care for the city's needs for the next twenty-five years.

Firemen Plan Hospital—Chief W. D. Minter, of Long Beach, Cal., has been collecting data on hospital operation. An emergency hospital is being planned for the Fire Department. It is the chief's intention to have a surgeon in charge of the hospital at all times. In Portland, Ore., an emergency hospital is operated under the supervision of the Police Department.

Tom Graham Returns from Hawaii—Tom Graham, Chief of Corvallis, Ore., and Mrs. Graham, have returned from a three-months trip to Hawaii. Before leaving Honolulu, the firemen there came to his home and arranged a farewell feast that lasted all day. He was presented with a loving cup made of Hawaiian koewood. Chief Graham, at the time of the steamship fire in Honolulu, commanded one of the fireboats and helped the local department.

When Apparatus Violates Speed Laws

(*Continued from page 688*)

"The term 'motor vehicle' shall mean every self-propelled vehicle moving over the highways of this state, excepting road rollers, farm tractors, traction engines, fire extinguishing engines and police ambulances."

A private ambulance being operated at a higher rate of speed than stipulated for private vehicles collided with a truck. The owner of the ambulance contended that the law exempted him from obeying the laws regulating the speed of private vehicles. However, the Court held the owner of the ambulance liable, stating the following important law:

"It will be noticed that this subdivision does not exclude from the term 'motor vehicle' ambulances in general, but only police ambulances; so, if there is any privilege to private ambulances to run at greater speed then, or entitling them to the right of way over, other vehicles, it is not to be found in this section. . . . Whatever right of way defendant's machine may have had by virtue of its being an ambulance has no relation to the speed at which it was traveling, if such speed was above the statutory limit for automobiles in general, which at street intersections is 12 miles an hour."

Right of City to Recover Damages

Obviously, a city is entitled to recover damages from any private individual or corporation where the testimony proves that an accident effecting damage to fire department equipment resulted from negligence on the part of the individual or corporation employe.

For instance, in a leading case, Shreveport vs. Ry. Company, 118 So. 872, a city sued a railway company for damages to a motor fire truck which was wrecked when it collided with a pole as a result of the driver swerving from the street to avoid colliding with a train at a railway crossing.

The driver of the fire truck testified that he was returning from a fire and approached the crossing believing that the usual flagman was there. When he was near the track he observed a train approaching and he swerved the truck to avoid a collision.

There was no mechanic near able to repair the damaged truck. The city purchased a new truck and sued to recover the difference between the new truck price and the value of the damaged truck.

Since witnesses testified that the flagman was not at his post when the train and fire truck approached the crossing, the higher Court held the city entitled to recover $6,900 damages, and said:

"The flagman was not at his post, and that this, and not any recklessness on the part of the driver of the truck, was the direct cause of the accident. . . . The driver of the truck had a right to assume, when no flagman appeared, that no train was approaching; and if thereafter he perceived a train approaching, he was required to do no more than what then seemed to him best to avoid the collision."

When Railway Trains Block Fire Apparatus

Still another important point of the law, which requires frequent solution, involves the liability of a railway company which blocks streets and interferes with passage of fire apparatus.

Ordinarily, neither a city nor a property owner has right of legal action against a railroad company which blocks passage of fire apparatus and thereby increases damage caused by fire, if it is proved that the railroad employes did not negligently or purposely block the street.

For example, in Fire Insurance Company vs. Mellon, 220 N. W. 331, it was shown that railway company employes violated a state law which provides that the fire department shalll have full right of way on all streets when responding to a fire alarm. The law further provides that any person who shall wilfully interfere with any fireman in the performance of his duty shall be liable for all damages resulting to any property.

An owner whose property was damaged as a result of a delay sued the railway company and proved that the driver of the fire truck was compelled to detour around the train with the result that the building was considerably damaged before they arrived.

However, since it was not proved that the engineer or other employe of the railroad company had purposely or negligently blocked the street, the Court held the railway company not liable, and said:

"There is no evidence of willfulness nor any evidence of negligence, unless the mere fact of hindrance constitutes such negligence. The railroad company had the undoubted right to use its railway in the ordinary course of business until it should come to its notice in some way that it was interfering, or was about to interfere, with the operations of the fire department. . . . Manifestly some notice and some appreciable time would be requisite to enable those in charge of the movement of the train to adapt themselves to the approach of the fire truck and to clear the street crossing for that purpose. . . . No one had warned or notified those in charge of the train."

Arson Record in Illinois for a Year

Twenty-nine convictions for arson and burning to defraud was the record in Illinois for the fiscal year ending June 30, according to the annual report of State Fire Marshal S. L. Legreid. The number is considerably larger than in any recent years, and in the opinion of Mr. Legreid would have been larger had not certain promising cases been continued to later terms of court.

A total of 537 cases was investigated, of which 192 are still open for further investigation. One of the notable convictions was that of a pyromaniac who confessed to setting nine fires in one city and seven in another.

An unusual method of procedure was tried on one case in which the evidence was not sufficient to sustain a charge of arson or burning to defraud. An indictment was obtained in Federal Court charging fraudulent use of the mails. The charge is based on the fact that the proof of loss was sent through the mails.

Mr. Legreid says that a wave of incendiary fires has persisted throughout the year and has kept most of his men engaged on criminal investigations.

The Round Table

(*Continued from page 706*)

Without them it would have been impossible for us to have presented concrete evidence. For this reason I strongly recommend the taking of photographs for use by the fire department.

W. H. Funderburk, Chief, Springfield, Ill.: All fires of a suspicious nature are reported to the state fire marshal for investigation. A deputy is assigned by him to take care of the case. They frequently take photographs. We have no one assigned to this work. However, I do believe it would be a good thing. I am interested in anything that will tend to reduce the number of losses by fire.

Peter Steinkelner, Chief, Milwaukee, Wis.: Photographs of hazards, violations, and suspicious fires are taken by members of our department who are assigned to the inspection bureau. These have proven invaluable in gathering a great deal of evidence which materially assists in the prosecution of court cases.

Chas. M. McCarthy, Chief, Worcester, Mass.: Pictures of various fires, violations, etc., are not taken by the fire department. However, on several occasions such pictures have been taken by the Worcester Protective Department (Fire Patrol). When taken, a commercial photographer has been employed. The taking of photographs of fires and the conditions surrounding the fire, to my mind, is a very fine thing. There is no doubt but that such pictures depict conditions, which if corrected, might have prevented the fire and would prevent a similar fire occurring again.

Chas. A. Johnson, Supt., Fire Prevention Bureau, Minneapolis, Minn.: Photographs used in connection with our work are taken by commercial photographers. When a fire occurs which is of suspicious origin, photographs of evidence to be submitted in court are a great help in obtaining a conviction. It is sometimes advisable to take photographs of hazards and violations, especially when trouble is anticipated, such as ordering the wrecking and removal of old dilapidated buildings, where the owner cannot be found or there are several interested parties who cannot agree.

R. D. Gambrell, Deputy Chief, Dallas, Texas: This department does not take photographs of any kind. However, I think pictures should be taken of all hazards and fires of suspicious origin. This work, in my opinion, should be done by a member of the department having a thorough amount of training in photography. These pictures, if taken, could be used in our schools and also as evidence in the event of a trial.

Geo. M. Kellogg, Chief, Sioux City, Ia.: We take photographs of hazards, violations and suspicious fires. Most of our pictures are taken by commercial photographers or by newspaper photographers. I think such work is very valuable and serves as the best kind of evidence. It has been of great assistance to our department on several occasions.

Arthur Newton, Chief, East Chicago, Ind.: While we are not equipped to take photographs of various types of fires and hazards, the idea is certainly a very practical one. Much could be accomplished in the way of reducing fire hazards as a result of such work.

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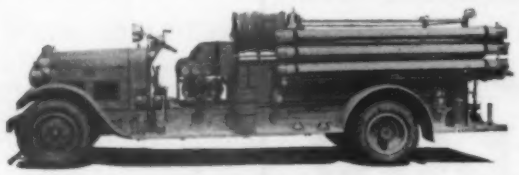

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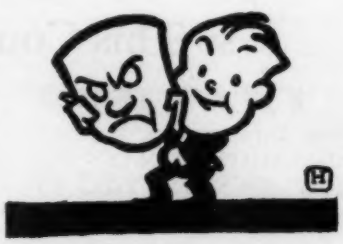

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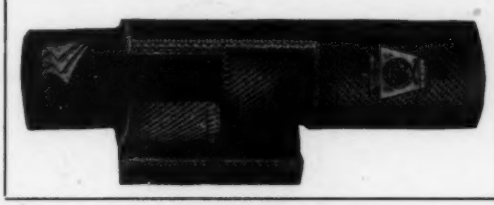

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MACK TYPE FIFTY
500 Gallon Pumper

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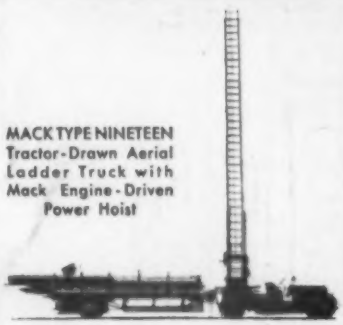
MACK TYPE NINETY
City Service Hook and Ladder

THE MACK ENGINE DRIVEN POWER HOIST



MACK TYPE NINETEEN
Tractor-Drawn Aerial Ladder Truck with Mack Engine-Driven Power Hoist

The Mack Type Fifty—500 Gallon Triple Combination Pumper, Hose and Booster Tank recently delivered to Collegeville, Pa., Fire Dept.

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